JD-XA

SERVICE NOTES
Issued by RJA

Table of Contents

Revise Information

Jul. 28, 2015	p. 8, p. 21	Changed screws.

Cautionary Notes

Before beginning the procedure, please read through this document. The matters described may differ according to the model.

Back Up User Data!

User data may be lost during the course of the procedure. Refer to **Data Backup and Restore Operations** (p. 23) in the Service Notes and save the data. After completing the procedure, restore the backed-up data to the product.

Part Replacement

When replacing components near the power-supply circuit or a heat-generating circuit (such as a circuit provided with a heat sink or including a cement resistor), carry out the procedure according to the instructions with respect to the part number, direction, and attachment position (mounting so as to leave an air gap between the component and the circuit board, etc.).

Parts List

A component whose part code is ******** will not be supplied as a service part because one of the following reasons applies.

- Because it is supplied as an assembled part (under a different part code).
- Because a number of circuit boards are grouped together and supplied as a single circuit board (under a different part code).
- Because supply is prohibited due to copyright restrictions.
- Because reissuance is restricted.
- Because the part is made to order (at current market price).
- Because it is carried in electronic data on the Roland web site.
- Because it is a package or an accessory irrelevant to the function maintenance of the main body.
- Because it can be replaced with an article on the market. (battery or etc.)

Circuit Diagram

In the circuit diagram, "NIU" is an abbreviation for "Not in Use," and "UnPop" is an abbreviation for "Unpopulated." They both mean non-mounted components. The circuit board and circuit board diagram show silk-screened indications, but no components are mounted.

Specifications

Roland JD-XA: Synthesizer keyboard

Keyboard

49 keys (with velocity and channel aftertouch)

Sound Generator Section

Maximum Polyphony

Analog Part: 4 voices
Digital Part: 64 voices (varies according to the sound generator load)

Structure: Analog/Digital Crossover Synthesizer

Analog Part: 4 parts (2 OSCs + AUX, 1 Filter, 1 AMP, 2 Pitch ENV, 1 Filter ENV, 1 AMP ENV, 2 LFOs and 1 MOD LFO)
Digital Part: 4 parts (3 Partial (3 OSCs, 3 Filters, 3 AMPs, Envelops for each section and LFOs))
(Digital Part uses SuperNATURAL Synth tones that is compatible with the Integra-7.)

User Program Memory

Internal: 256
USB Flash memory: 256
The patterns of Arpeggio and Sequence are saved as programs.

Analog-OSC Section

Oscillator waveforms: Saw, Square, Pulse/PWM, Triangle, Sine
Knobs/Sliders: Pitch, Fine, Cross Mod, Pulse Width, Pulse Width Modulation
Pitch Envelopes: Attack, Decay, Envelope Depth
Modulation: Cross Modulation, Ring Modulation, Oscillator Sync
(A-OSC2 is applied as modulation to A-OSC1.)

Analog-FILTER Section

Filter Type: LPF1, LPF2, LPF3, HPF, BPF, Bypass
Knobs: Cutoff, Resonance, Key Follow, Envelope Depth, HPF, Drive
Envelope: Attack, Decay, Sustain, Release

Analog-AMP Section

Knobs: Level
Envelope: Attack, Decay, Sustain, Release

Digital-OSC Section

Oscillator waveforms: Saw, Square, Pulse/PWM, Triangle, Sine, Variation
Knobs/Sliders: Pitch, Fine, Pulse Width, Pulse Width Modulation
Pitch Envelopes: Attack, Decay, Envelope Depth
Modulation: Ring Modulation
(Partial2-OSC is applied as modulation to Partial1-OSC.)

Digital-FILTER Section

Filter Type: LPF1, LPF2, LPF3, HPF, BPF, Variation, Bypass
Knobs: Cutoff, Resonance, Key Follow, Envelope Depth, HPF
Envelope: Attack, Decay, Sustain, Release

Digital-AMP Section

Knobs: Level
Envelope: Attack, Decay, Sustain, Release

LFO Section

LFO Waveform: Triangle, Sine, Saw, Square, Sample&Hold, Random
Knobs/Sliders: Rate, Fade Time, Pitch Depth, Filter Depth, Amp Depth
Tempo Sync

Mixer Section (For Analog Part)

Level: A-OSC 1, A-OSC 2, AUX
AUX: White Noise, Pink Noise, Digital Part, MIC

MIC

Vocoder
MIC Modulation

Effects

MFX: 8 systems, 67 types (each part has a MFX)
Part EQ 8 systems (each part has a Part EQ)
TFX: 2 systems, 29 types
DELAY
REVERB: 6 types
Master EQ
Mic Input Reverb: 8 types

Pattern Sequencer

Track: 16
Patterns are saved as a program.
SMF import supported.

Arpeggio

Preset pattern: 64
Patterns are saved as a program.

Controllers

Pitch bend and modulation lever
Pitch and modulation wheels

Display

16 characters 2 lines LCD

External Storage

USB Flash memory

Connectors

PHONES jack: Stereo 1/4-inch phone type
MAIN OUTPUT jacks (L/MONO, R): 1/4-inch TRS phone type
ANALOG DRY OUTPUT jack: 1/4-inch phone type
CLICK OUTPUT jack: Stereo 1/4-inch phone type
MIC jack: Combo type (XLR, 1/4-inch TRS phone), balanced
FOOT PEDAL jacks (CTRL 1, CTRL 2, HOLD)
CV/GATE OUTPUT jacks (2 systems): Miniature phone type
(CV: These jacks support OCT/V (Hz/V is not supported). GATE: They output +5 V.)
MIDI connectors (IN, OUT)
USB COMPUTER port (USB Hi-Speed AUDIO/MIDI): USB B type
(Use a USB cable and a computer with a USB port that support USB 2.0 Hi-Speed.)
USB MEMORY port: USB A type
DC IN jack

Power Supply

AC Adaptor

Current Draw

3,000 mA

Dimensions

899 (W) x 388 (D) x 111 (H) mm
35-7/16 (W) x 15-5/16 (D) x 4-3/8 (H) inches

Weight

6.5 kg
14 lbs 6 oz
(excluding AC Adaptor)

Accessories

Owner's Manual (#5100045491)
AC Adaptor (#04236112)
Power Cord (#5100012293, #5100000692, #5100000564, #5100039367, #5100018086, #05017301, #5100029122)

Options (sold separately)

Keyboard Stand (*1): KS-18Z
Pedal Switch: DP series
Expression Pedal: EV-5
USB Flash Memory (*2)

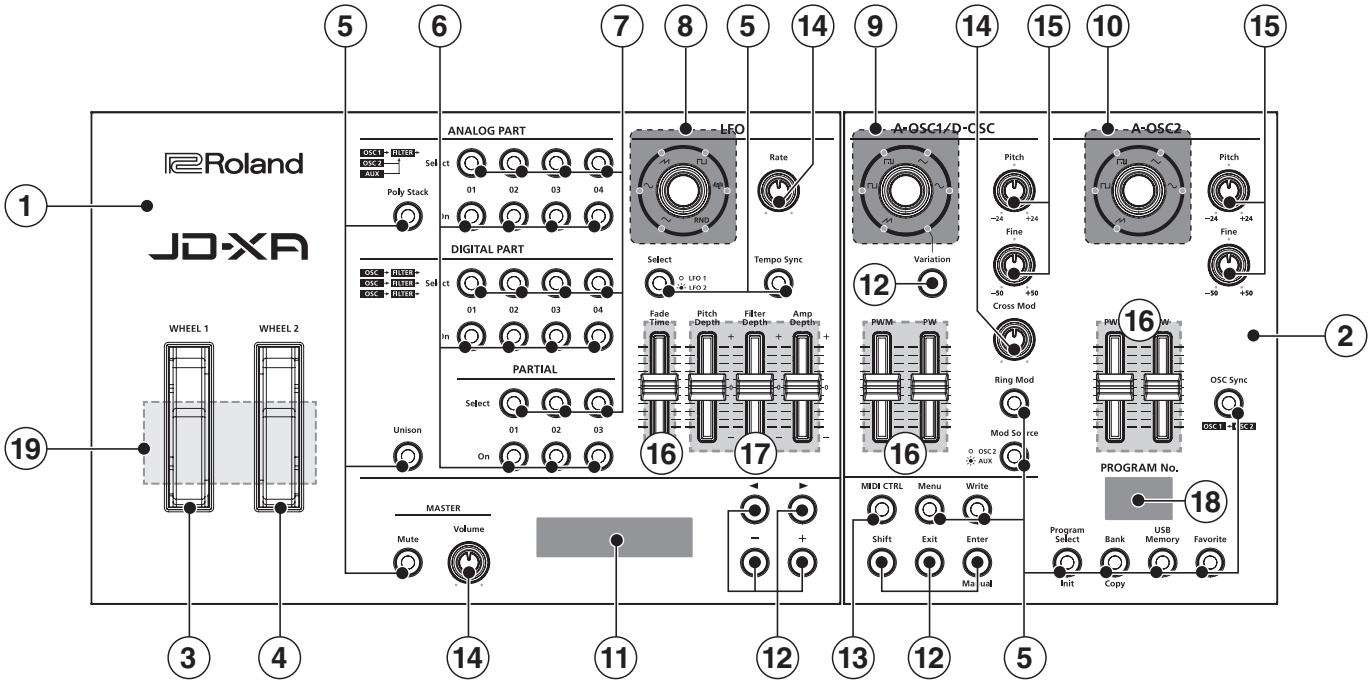
*1 *When using the KS-18Z ensure that the height of the unit is one meter or lower.*

*2 *Use USB Flash Memory (supports USB 2.0 Hi-Speed Flash Memory) sold by Roland. We cannot guarantee operation if other products are used.*

* *Printed matters will not be supplied after the end of the production. Then, download the electronic file from the Roland web site.*

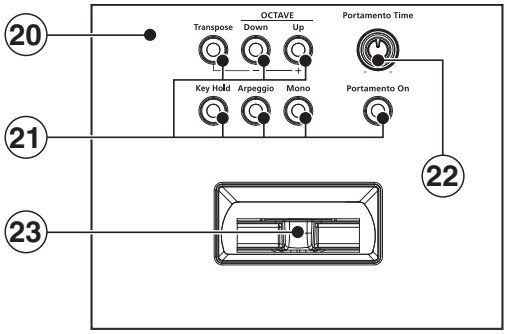
* *In the interest of product improvement, the specifications and/or appearance of this unit are subject to change without prior notice.*

Location of Controls (Panel L)



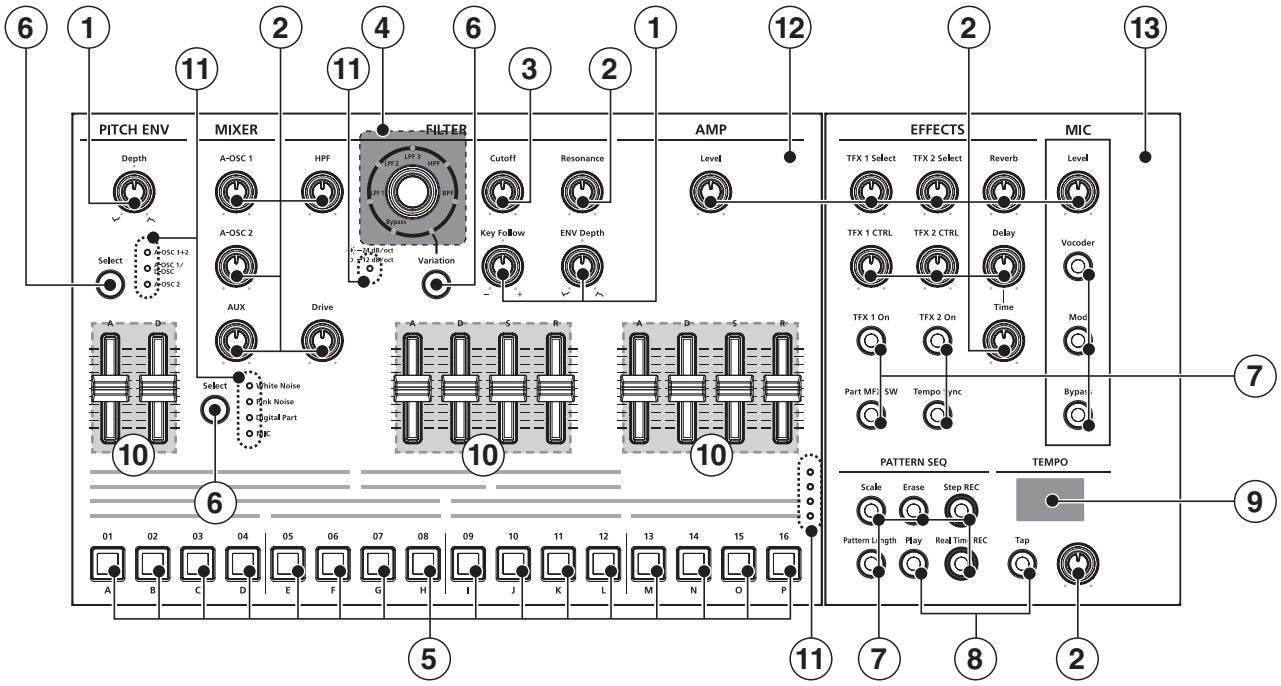
No.	Part Code	Part Name	Description	Q'ty
1	5100042388	PANEL SHEET A		1
2	5100042391	PANEL SHEET B		1
	5100042659	BENDER WHEEL ASSY		1
	* *This unit includes the following parts.*			
3	********	PITCH WHEEL ASSY		1
4	********	MOD WHEEL ASSY		1
5	5100042395	ZT C-KEYTOP	SD1H BLK/CLR	14
	02781634	TACT SWITCH	SKRGAED010	14
	5100036720	LED	WW-OR190TS-J	14
6	5100042395	ZT C-KEYTOP	SD1H BLK/CLR	11
	02781634	TACT SWITCH	SKRGAED010	11
	5100036720	LED	WW-OR190TS-J	11
	5100036498	LED	WW-GIS190TS-G	11
7	5100042395	ZT C-KEYTOP	SD1H BLK/CLR	11
	02781634	TACT SWITCH	SKRGAED010	11
	5100041421	LED	WW-BIS190TS-G	11
8	5100042401	ZT R-KNOB	MF BLK/SLV	1
	5100041025	ENCODER	EC18AGA20402	1
	5100036720	LED	WW-OR190TS-J	6
9	5100042401	ZT R-KNOB	MF BLK/SLV	1
	5100041025	ENCODER	EC18AGA20402	1
	5100036720	LED	WW-OR190TS-J	6
10	5100042401	ZT R-KNOB	MF BLK/SLV	1
	5100041025	ENCODER	EC18AGA20402	1
	5100036720	LED	WW-OR190TS-J	5
11	5100041314	LCD	221-1162-2123	1
	5100010674	DISPLAY CUSHION		1
	5100044220	LCD SHIELD SHEET		1
	40122534	DOUBLE-FACED TAPE	#500 W3MM 20M 136P	-
12	5100042396	ZT C-KEYTOP	SX1H BLK	8
	02781634	TACT SWITCH	SKRGAED010	8
13	5100042395	ZT C-KEYTOP	SD1H BLK/CLR	1
	02781634	TACT SWITCH	SKRGAED010	1
	5100036498	LED	WW-GIS190TS-G	1
14	5100042398	ZT R-KNOB	SF BLK/SLV	3
	5100037792	R-KNOB ESCUTCHEON	CLR	3
	5100041032	ROTARY POTENTIOMETER	XV09223NPV25F972Z10K/I	3
	5100036720	LED	WW-OR190TS-J	3
15	5100042398	ZT R-KNOB	SF BLK/SLV	4
	5100037792	R-KNOB ESCUTCHEON	CLR	4
	5100041031	ROTARY POTENTIOMETER	XV09223NPV25F972Z10KCC/I	4
	5100036720	LED	WW-OR190TS-J	4

No.	Part Code	Part Name	Description		Q'ty
16	5100044852	J S-KNOB	M BLK/RED		5
	5100037657	SLIDE POTENTIOMETER	C3080G1AV1B103BA00B3		5
	5100037876	S-KNOB ESCUTCHEON	CLR		5
	5100036720	LED	WW-OR190TS-J		10
17	5100044852	J S-KNOB	M BLK/RED		3
	5100043757	SLIDE POTENTIOMETER	C3080G1AV1B103BA01BF		3
	5100037876	S-KNOB ESCUTCHEON	CLR		3
	5100036720	LED	WW-OR190TS-J		6
18	5100019998	LED	DKA13SR053G(F5229831R0)		3
19	5100036720	LED	WW-OR190TS-J	on WHEEL BOARD	8



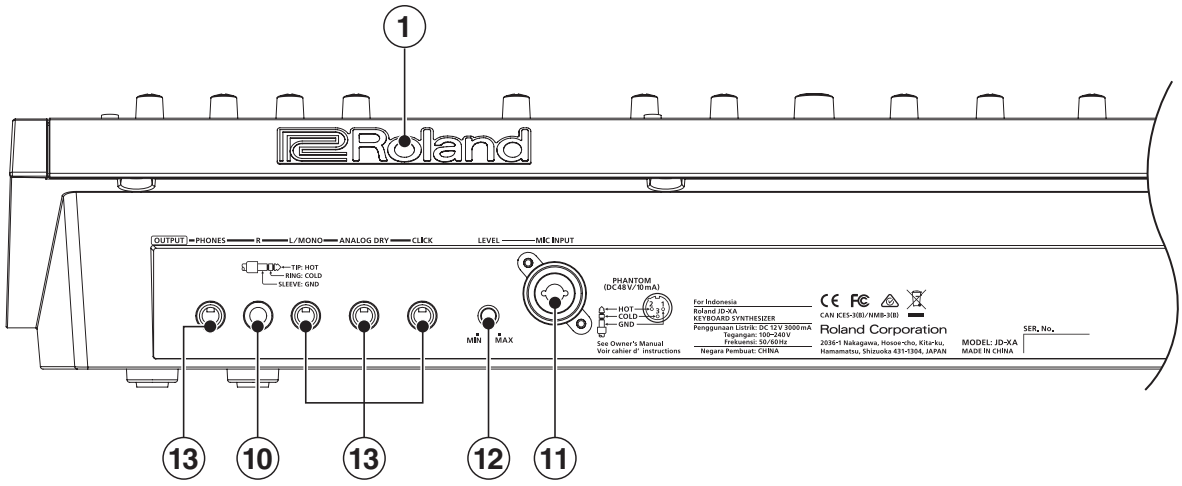
No.	Part Code	Part Name	Description	Q'ty
20	5100042394	BENDER PANEL SHEET		1
21	5100042395	ZT C-KEYTOP	SD1H BLK/CLR	7
	02781634	TACT SWITCH	SKRGAED010	7
	5100036720	LED	WW-OR190TS-J	7
22	5100042398	ZT R-KNOB	SF BLK/SLV	1
	5100037792	R-KNOB ESCUTCHEON	CLR	1
	5100041032	ROTARY POTENTIOMETER	XV09223NPV25F972Z10K/I	1
	5100036720	LED	WW-OR190TS-J	1
23	5100035565	BENDER	PB-H0301-BK	1

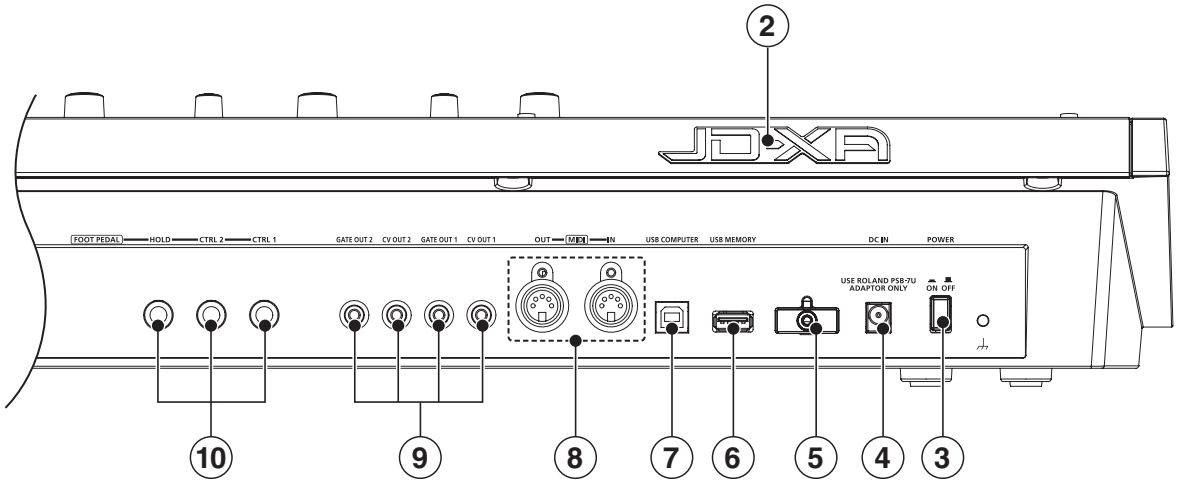
Location of Controls (Panel R)



No.	Part Code	Part Name	Description	Q'ty
1	5100042398	ZT R-KNOB	SF BLK/SLV	3
	5100037792	R-KNOB ESCUTCHEON	CLR	3
	5100041031	ROTARY POTENTIOMETER	XV09223NPV25F972Z10KCC/I	3
	5100036720	LED	WW-OR190TS-J	3
2	5100042398	ZT R-KNOB	SF BLK/SLV	16
	5100037792	R-KNOB ESCUTCHEON	CLR	16
	5100041032	ROTARY POTENTIOMETER	XV09223NPV25F972Z10K/I	16
	5100036720	LED	WW-OR190TS-J	16
3	5100046586	ZT R-KNOB	SF BLK/RED	1
	5100037792	R-KNOB ESCUTCHEON	CLR	1
	5100041032	ROTARY POTENTIOMETER	XV09223NPV25F972Z10K/I	1
	5100036720	LED	WW-OR190TS-J	1
4	5100042401	ZT R-KNOB	MF BLK/SLV	1
	5100041025	ENCODER	EC18AGA20402	1
	5100036720	LED	WW-OR190TS-J	7
5	5100042397	ZT S-KEYTOP	SD1H BLK/CLR	16
	02781634	TACT SWITCH	SKRGAED010	16
	5100036746	LED	WW-FCE50TC-Q1(BTF)	16
6	5100042396	ZT C-KEYTOP	SX1H BLK	3
	02781634	TACT SWITCH	SKRGAED010	3
7	5100042395	ZT C-KEYTOP	SD1H BLK/CLR	12
	02781634	TACT SWITCH	SKRGAED010	12
	5100036720	LED	WW-OR190TS-J	12
8	5100042395	ZT C-KEYTOP	SD1H BLK/CLR	2
	02781634	TACT SWITCH	SKRGAED010	2
	5100036720	LED	WW-OR190TS-J	2
	5100036498	LED	WW-GIS190TS-G	2
9	5100019998	LED	DKA13SR053G(F5229831R0)	3
10	5100044852	J S-KNOB	M BLK/RED	10
	5100037657	SLIDE POTENTIOMETER	C3080G1AV1B103BA00B3	10
	5100037876	S-KNOB ESCUTCHEON	CLR	10
	5100036720	LED	WW-OR190TS-J	20
11	5100036720	LED	WW-OR190TS-J	12
12	5100042392	PANEL SHEET C		1
13	5100042393	PANEL SHEET D		1

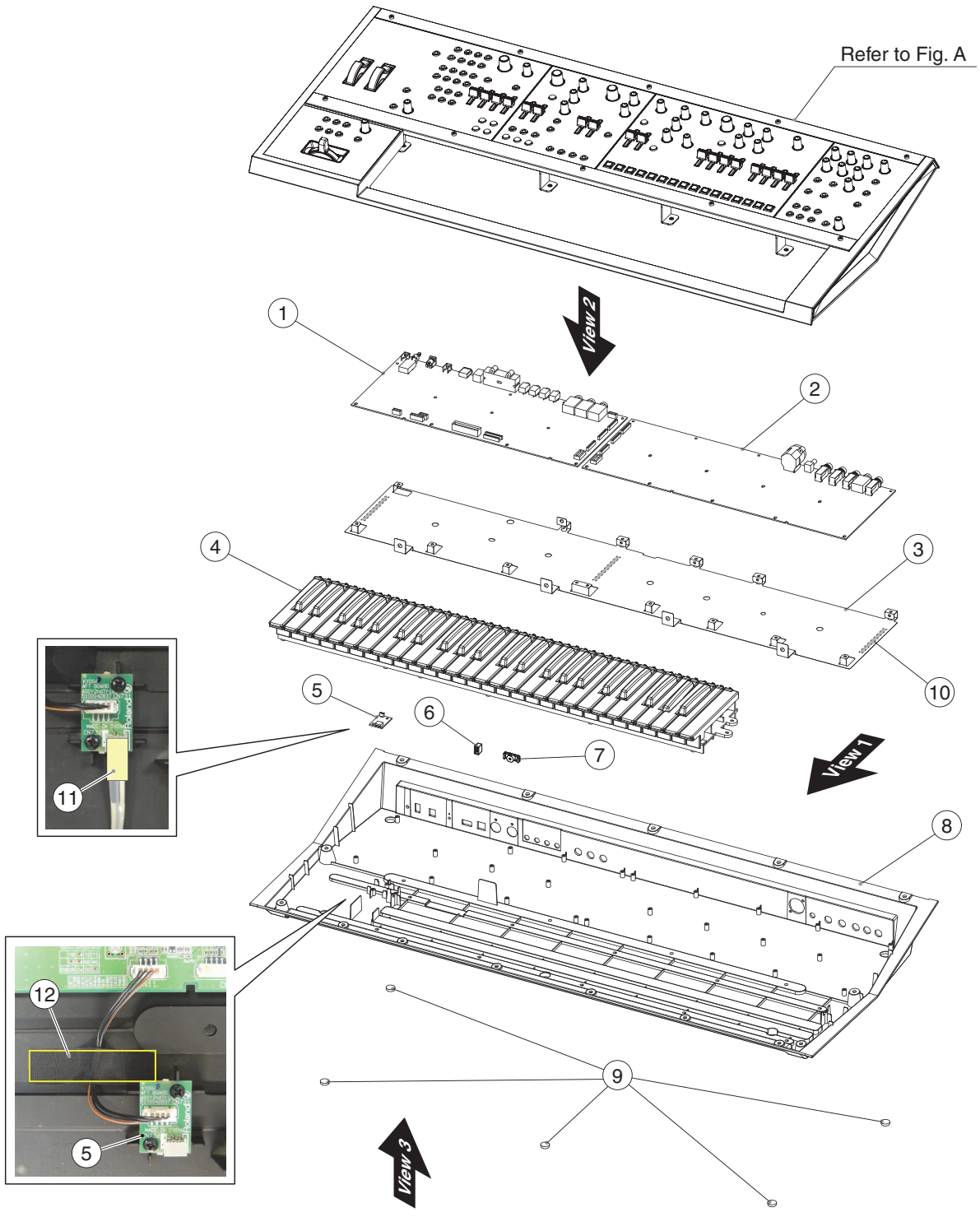
Location of Controls (Rear)



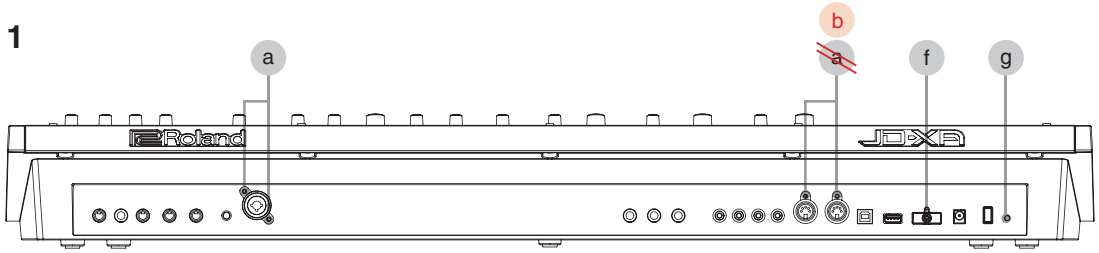


No.	Part Code	Part Name	Description	Q'ty
1	5100044791	ROLAND BADGE		1
2	5100044793	JD BADGE		1
3	5100037825	G S-BUTTON	BLK (710-12058-15-00)	1
	04904123	PUSH SWITCH AC POWER SUPPLY	400-07040-01-00(PWL-2P2T-6SBP	1
4	02900312	DC JACK	HEC0470-01-640	1
5	5100027106	CORD HOOK	40516-014	1
6	04459190	USB CONNECTOR A TYPE FEMALE	YKF45-0033N	1
7	5100010665	USB CONNECTOR B TYPE FEMALE	2549A-04G2T(610-02001-04-00)	1
8	13429676	MIDI CONNECTOR	YKF51-5048V(TWIN)	1
9	02456390	3.5MM JACK	STEREO YKB21-5290	4
10	13449252	6.5MM JACK	YKB21-5006 (STEREO W/SW)	4
11	5100014678	CANNON CONNECTOR	CT/PJ-02-EP	1F
12	04901712	ROTARY POTENTIOMETER	RK09K1110D4S	1
13	13449275	6.5MM JACK	YKB21-5074	4

Exploded View



View 1



Exploded View Parts List

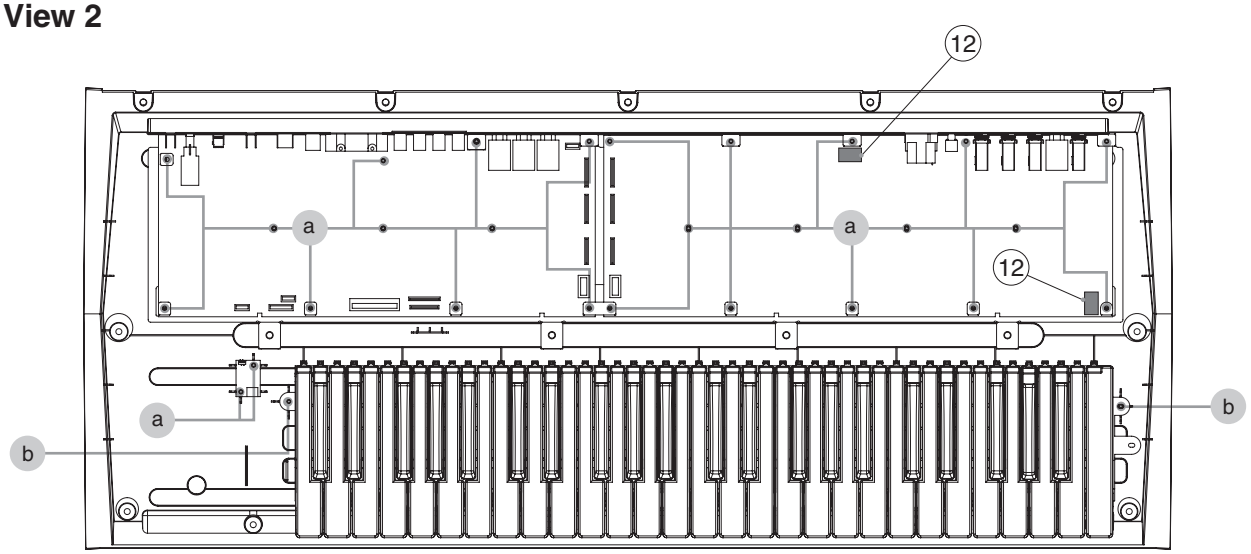
No.	Part Code	Part Name	Description	Q'ty
1	5100042729	MAIN BOARD ASSY		1
2	5100042730	ANALOG JACK BOARD ASSY		1
3	5100046310	SHIELD SHEET		1
4	5100009856	KEYBOARD ASSY MSK-249 AFT	W/O CABLE (990-06022-10-02)	1
	5100042731	PANEL L SHEET ASSY		1
	* *This unit includes the following parts.*			
5	********	AFTER BOARD		1
	********	PANEL L BOARD	Refer to **Exploded View (Fig.A)** (p. 12)	1
	********	SIDE BOARD	Refer to **Exploded View (Fig.A)** (p. 12)	1
	********	WHEEL BOARD	Refer to **Exploded View (Fig.A)** (p. 12)	1
	********	ENCODER1 BOARD	Refer to **Exploded View (Fig.A)** (p. 12)	1
	********	ENCODER2 BOARD	Refer to **Exploded View (Fig.A)** (p. 12)	1
	********	ENCODER3 BOARD	Refer to **Exploded View (Fig.A)** (p. 12)	1
6	5100037825	G S-BUTTON	BLK (710-12058-15-00)	1
7	5100027106	CORD HOOK	40516-014	1
8	5100042383	BOTTOM CASE		1
9	12359137	RUBBER FOOT	SJ-5012 BLK	5
10	40122490	DOUBLE-FACED TAPE	#500 W5MM 20M 40P	-
11	40122645	NITTO FILAMENT TAPE	#3883 W19MM 50M 60P (CM)	-
12	40122812	ACETATE TAPE	NITTO #5 BLACK W15MM 30M	-

View 1

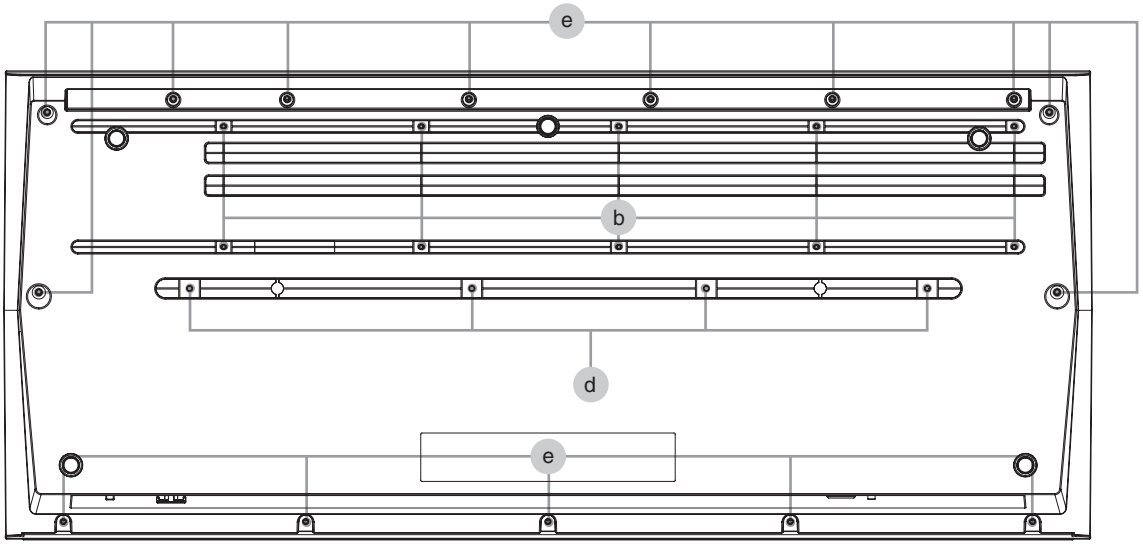
No.	Part Code	Part Name	Description	Q'ty
a	40011312	SCREW 3X8	BINDING TAPTITE P FE BZC	~~4~~ 2
b	40011334	SCREW 3X12	BINDING TAPTITE P FE BZC	2
f	5100034002	SCREW M3X12	PAN MACHINE W/SMW+PW BZC	1
g	40454856	SCREW M4X10	BINDING MACHINE NI	1

Plain View

View 2



View 3



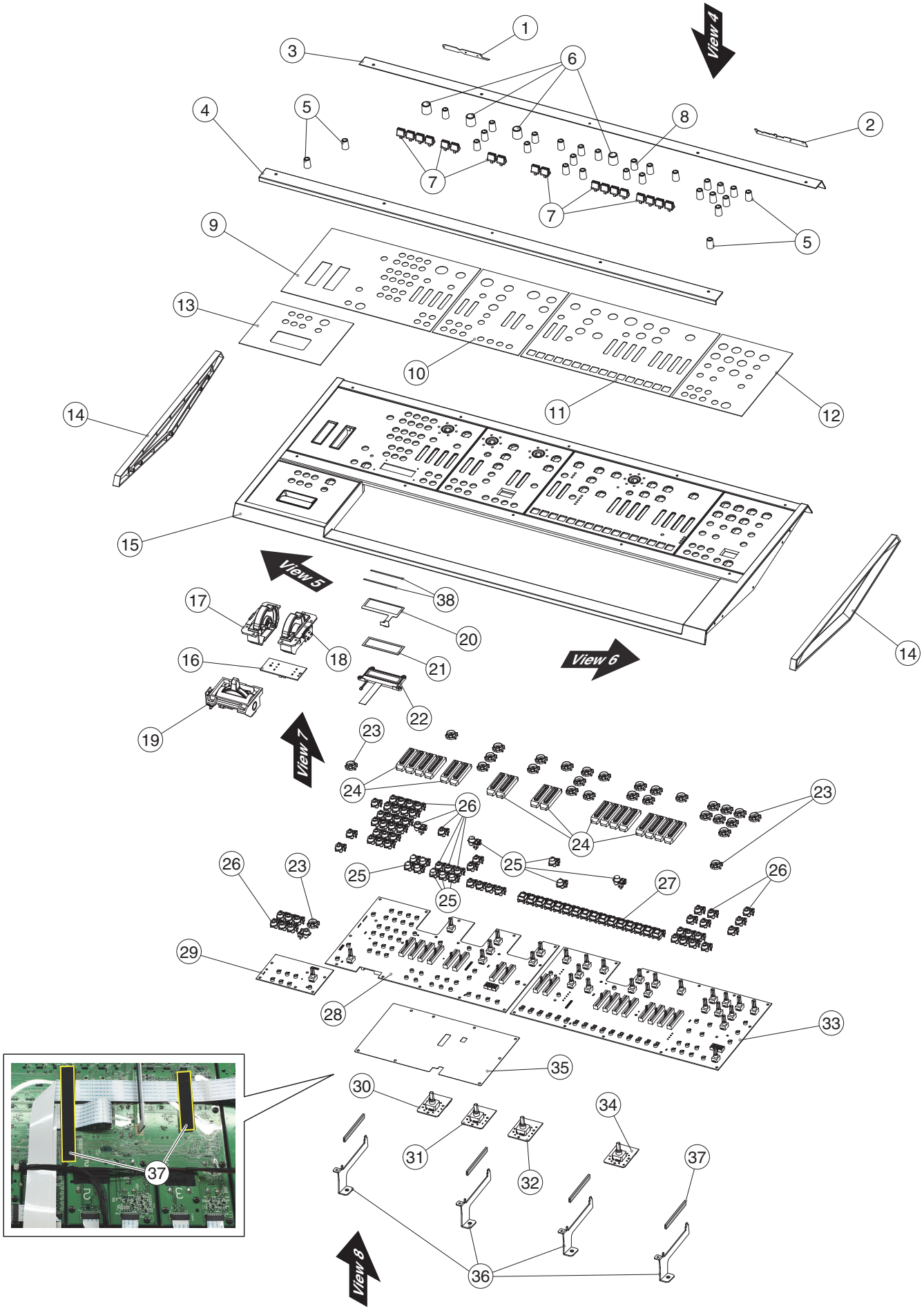
View 2

No.	Part Code	Part Name	Description	Q'ty
12	40122812	ACETATE TAPE	NITTO #5 BLACK W15MM 30M	-
a	40011312	SCREW 3X8	BINDING TAPTITE P FE BZC	27
b	40011334	SCREW 3X12	BINDING TAPTITE P FE BZC	2

View 3

No.	Part Code	Part Name	Description	Q'ty
b	40011334	SCREW 3X12	BINDING TAPTITE P FE BZC	10
d	40012345	SCREW 4X10	BINDING TAPTITE B BZC	4
e	40012490	SCREW 4X10	BINDING TAPTITE P BZC	15

Exploded View (Fig.A)

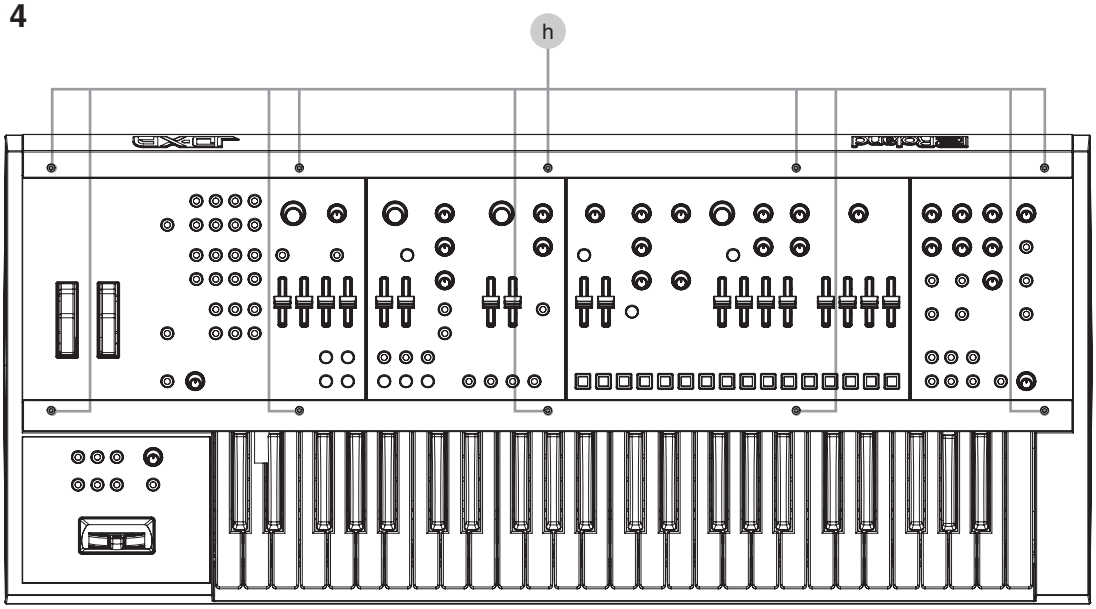


Exploded View (Fig.A) Parts List

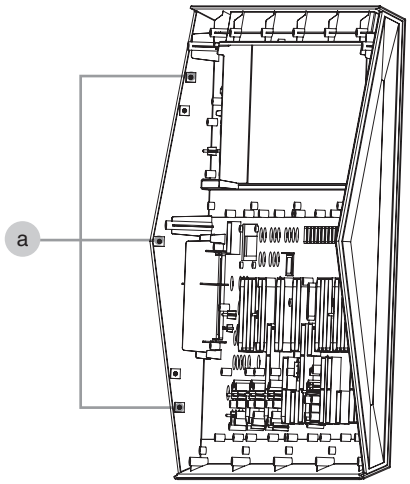
No.	Part Code	Part Name	Description	Q'ty
1	5100044793	JD BADGE		1
2	5100044791	ROLAND BADGE		1
3	5100042386	REAR CORNER COVER		1
4	5100042385	FRONT CORNER COVER		1
5	5100042398	ZT R-KNOB	SF BLK/SLV	27
6	5100042401	ZT R-KNOB	MF BLK/SLV	4
7	5100044852	J S-KNOB	M BLK/RED	18
8	5100046586	ZT R-KNOB	SF BLK/RED	1
9	5100042388	PANEL SHEET A		1
10	5100042391	PANEL SHEET B		1
11	5100042392	PANEL SHEET C		1
12	5100042393	PANEL SHEET D		1
13	5100042394	BENDER PANEL SHEET		1
14	5100042384	SIDE COVER		2
15	5100042382	TOP CASE		1
	5100042659	BENDER WHEEL ASSY		1
	* *This unit includes the following parts.*			
17	********	PITCH WHEEL ASSY		1
18	********	MOD WHEEL ASSY		1
19	5100035565	BENDER	PB-H0301-BK	1
20	5100044220	LCD SHIELD SHEET		1
21	5100010674	DISPLAY CUSHION		1
22	5100041314	LCD	221-1162-2123	1
23	5100037792	R-KNOB ESCUTCHEON	CLR	28
24	5100037876	S-KNOB ESCUTCHEON	CLR	18
25	5100042396	ZT C-KEYTOP	SX1H BLK	11
26	5100042395	ZT C-KEYTOP	SD1H BLK/CLR	58
27	5100042397	ZT S-KEYTOP	SD1H BLK/CLR	16
	5100042731	PANEL L SHEET ASSY		1
	* *This unit includes the following parts.*			
16	********	WHEEL BOARD		1
28	********	PANEL L BOARD		1
29	********	SIDE BOARD		1
30	********	ENCODER1 BOARD		1
31	********	ENCODER2 BOARD		1
32	********	ENCODER3 BOARD		1
	********	AFTER BOARD	Refer to **Exploded View** (p. 8)	1
	5100042732	PANEL R SHEET ASSY		1
	* *This unit includes the following parts.*			
33	********	PANEL R BOARD		1
34	********	ENCODER4 BOARD		1
35	5100044851	INSULATING SHEET		1
36	5100042387	CENTER HOLDER		4
37	40122812	ACETATE TAPE	NITTO #5 BLACK W15MM 30M	-
38	40122534	DOUBLE-FACED TAPE	#500 W3MM 20M 136P	-

Plain View (Fig.A) (1)

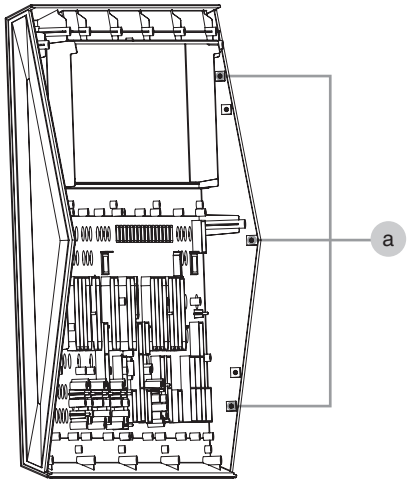
View 4



View 5



View 6



View 4

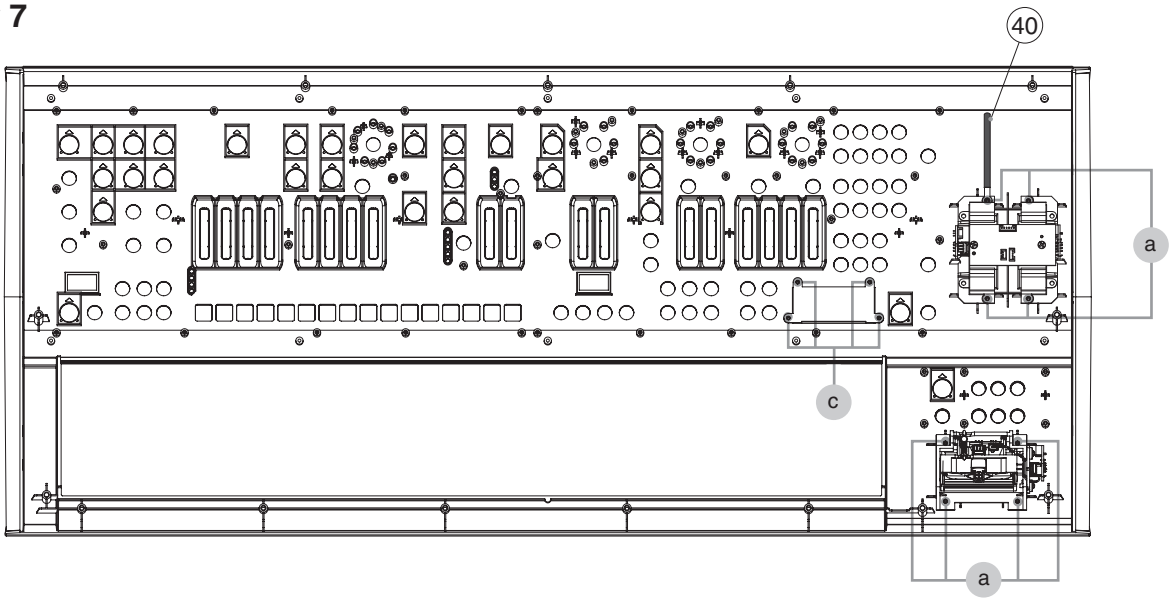
No.	Part Code	Part Name	Description	Q'ty
h	5100044863	SCREW 3X8	HEX SOCKET HEAD TAPTITE B BZC	10

View 5, 6

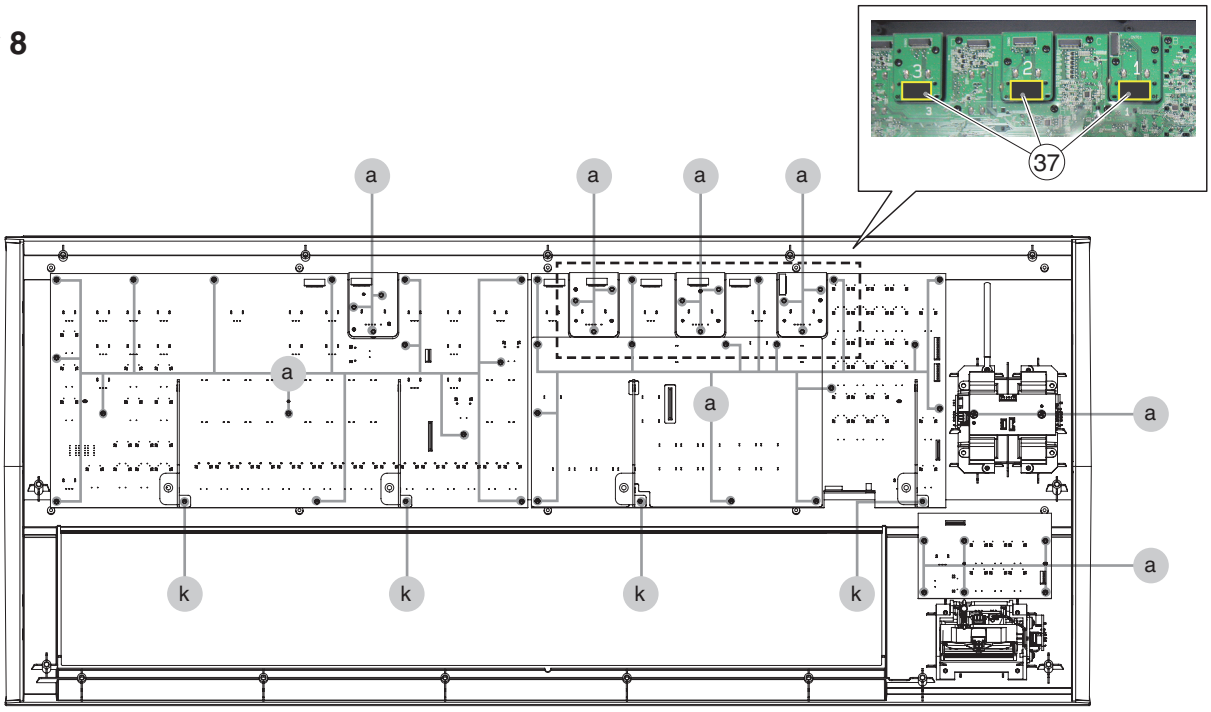
No.	Part Code	Part Name	Description	Q'ty
a	40011312	SCREW 3X8	BINDING TAPTITE P FE BZC	6

Plain View (Fig.A) (2)

View 7



View 8



View 7

No.	Part Code	Part Name	Description	Q'ty
40	40120967	COATING CLIP	CS-3	1
a	40011312	SCREW 3X8	BINDING TAPTITE P FE BZC	8
c	5100038406	SCREW 2.6X6	BINDING TAPTITE P BZC	4

View 8

No.	Part Code	Part Name	Description	Q'ty
37	40122812	ACETATE TAPE	NITTO #5 BLACK W15MM 30M	-
a	40011312	SCREW 3X8	BINDING TAPTITE P FE BZC	51
k	40011323	SCREW 3X10	BINDING TAPTITE P BZC	4

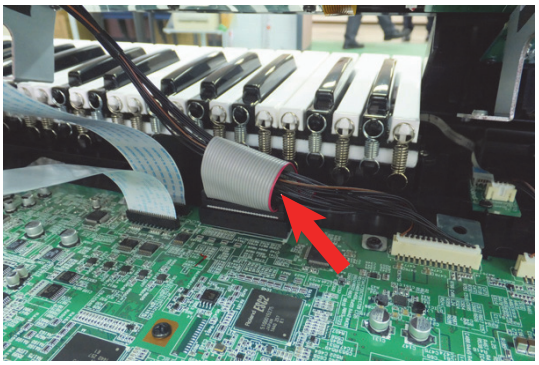
Disassembly Procedure

1. Place the unit so that the Bottom Case is upward.
   * *Be careful not to apply undue force to knobs or others parts.*
2. Remove screws **d** (x 4) and **e** (x 15) in **View 3** (**Plain View** (p. 10)).
3. Place the unit so that the keyboard and the Top Case are upward.
   * *When inverting the unit, catch the both side of it and be careful not to leave the Bottom Case and the Top Case each other.*
4. Lift the Top Case from the rear side slightly.
5. Disconnect the wiring (x 1) and the flat cables (x 2).
6. Lift the rear side more, and detach the Top Case carefully so that it does not hook the keyboard.

Important Notes on Assembly

Arranging the Wiring

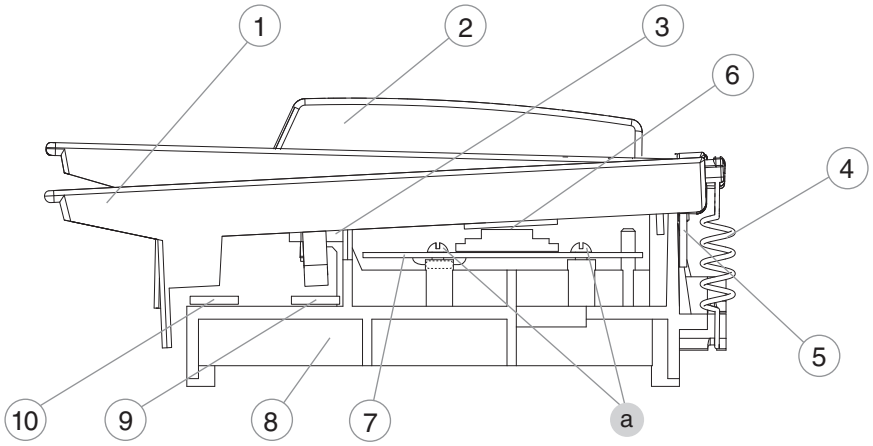
Pass the wiring which connects the Main Board to the Panel L Board under the wiring which connects the Main Board to the keyboard.



Screws for Bottom Case

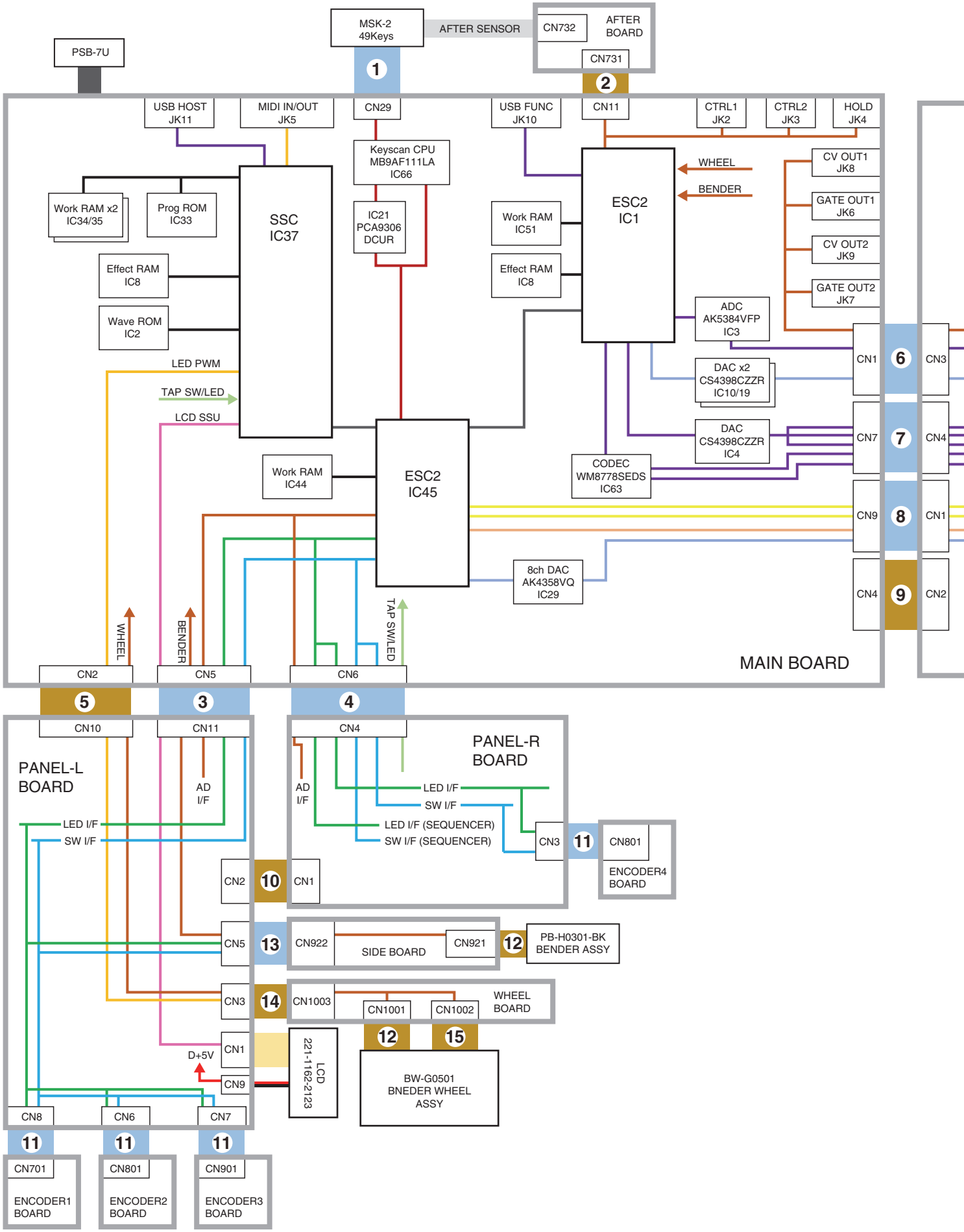
Length of the two kinds of screws securing the Bottom Case (**d** and **e** in **View 3**) are the same, but types are different. Be careful not to make a mistake in attaching them.

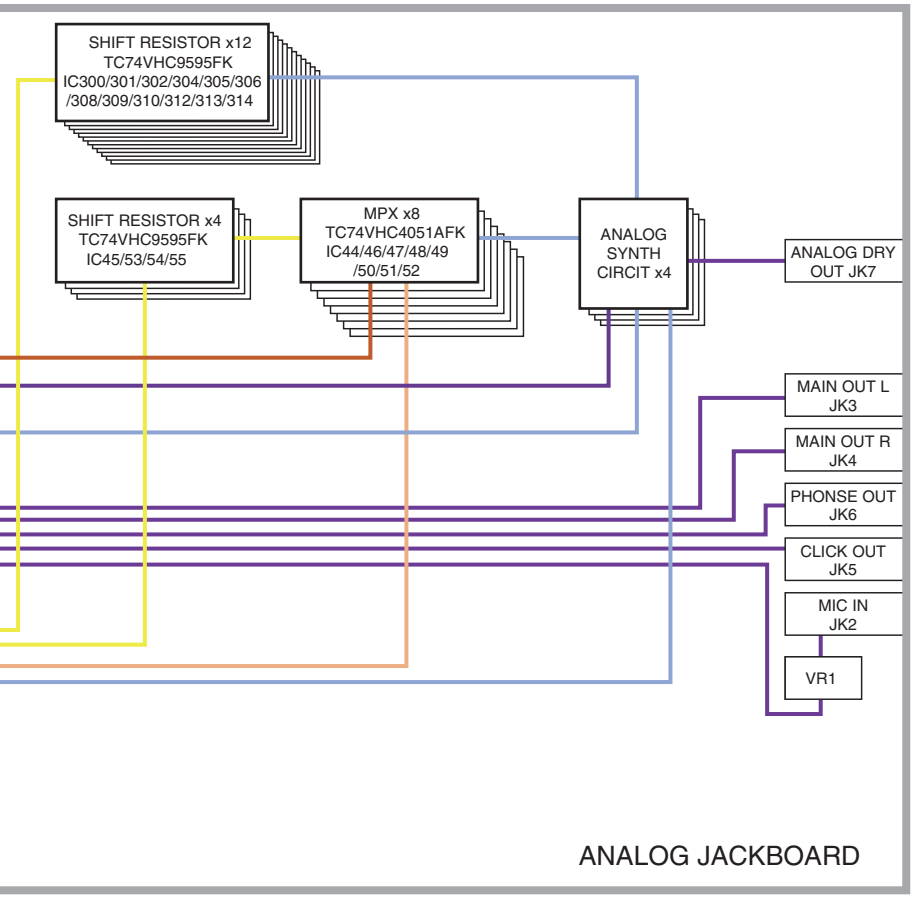
Keyboard Parts List



No.	Part Code	Part Name	Description	Q'ty
	5100009856	KEYBOARD ASSY	MSK-2 49KEY AFT (W/O CABLE)	
1	03786378	NATURAL KEY C	FOR MSK-2	4
	03786389	NATURAL KEY D	FOR MSK-2	4
	03786390	NATURAL KEY E	FOR MSK-2	4
	03786401	NATURAL KEY F	FOR MSK-2	4
	03786412	NATURAL KEY G	FOR MSK-2	4
	03786423	NATURAL KEY A	FOR MSK-2	4
	03786434	NATURAL KEY B	FOR MSK-2	4
	03786445	NATURAL KEY C'	FOR MSK-2	1
2	03786456	SHARP KEY	FOR MSK-2	20
3	5100009931	KEY FELT	MSK-2 HOOK T2.5X695X5.5	1
4	03456967	COILED SPRING	MSK-1 NATURAL KEY	29
	03456978	COILED SPRING	MSK-1 SHARP KEY	20
5	5100009933	KEY FELT	MSK-2 BACK T3.0X677X6.0	1
6	04230834	RUBBER SWITCH 12P	FOR MSK-1/MSK-2	3
	04230845	RUBBER SWITCH 13P	FOR MSK-1/MSK-2	1
7	03897389	PWB KEYBOARD ASSY	990-02067-10-00	1
8	********	CHASSIS KEYBOARD	FOR MSK-2	1
9	04348590	AFTERTOUCH SENSOR		1
10	5100009935	KEY FELT	MSK-2 BOTTOM T2.5X677X10	1
a	40011189	SCREW 3X8	PAN TAPTITE-P FE ZC	28

Block Diagram/Wiring Diagram





No.	Part Code	Part Name	Description	Q'ty
1	04569890	WIRING	CA ASSY 26WAY 400MM W/2 HX2	1
2	5100045471	WIRING	1061#28 4X100-PHR-PHR-F	1
3	5100046507	FLAT CABLE	SML2CD-24X360-BDX8(BL)-P1.0-S	1
4	5100046508	FLAT CABLE	SML2CD-22X550-BDX8(BL)-P1.0-S	1
5	5100046512	WIRING	1061#28 14X450-PHR-PHR-F	1
6	5100022474	FLAT CABLE	SML2CD-20X40-BDX8(BL)-P1.0	1
7	5100046509	FLAT CABLE	SML2CD-24X40-BDX8(BL)-P1.0-S4	1
8	5100046506	FLAT CABLE	SML2CD-38X40-BDX8(BL)-P1.0-S4	1
9	5100046511	WIRING	1061#28 8X40-PHR-PHR-F	1
10	5100046513	WIRING	1061#28 8X450-PHR-PHR-F	1
11	5100046504	FLAT CABLE	SML2CD-14X70-BDX8(BL)-P1.0-S4	4
12	5100043932	WIRING	1061#28 4X60-PHR-PHR-F	2
13	5100046505	FLAT CABLE	SML2CD-14X80-BDX8(BL)-P1.0-S4	1
14	5100046510	WIRING	1061#28 7X110-PHR-PHR-F	1
15	5100039038	WIRING	1061#28 3X80-PHR-PHR-F	1

Parts List

Safety Precautions:
The parts marked ⚠ have safety-related characteristics. Use only listed parts for replacement.

Due to one or more of the following reasons, parts with parts code ******** cannot be supplied as service parts.
- Supply is prohibited due to copyright restrictions.
- It is carried in electronic data on the Roland web site.
- The part is made to order (at current market price).
- It can be replaced with an article on the market. (battery or etc.)
- It is a package or an accessory irrelevant to the function maintenance of the main body.
- A number of circuit boards are grouped together and supplied as a single circuit board (under a different part code).
- Reissuance is restricted.
- It is supplied as an assembled part (under a different part code).

Note: The parts marked # are new. (initial parts) The description "Q'ty" means a necessary number of the parts per one product.

CASING

#	5100042382	TOP CASE		1
#	5100042383	BOTTOM CASE		1
#	5100042385	FRONT CORNER COVER		1
#	5100042386	REAR CORNER COVER		1
#	5100042384	SIDE COVER		2
#	5100042388	PANEL SHEET A		1
#	5100042391	PANEL SHEET B		1
#	5100042392	PANEL SHEET C		1
#	5100042393	PANEL SHEET D		1
#	5100042394	BENDER PANEL SHEET		1

CHASSIS

#	5100042387	CENTER HOLDER		4

KNOB, BUTTON

#	5100044852	J S-KNOB	M BLK/RED	18
#	5100042398	ZT R-KNOB	SF BLK/SLV	27
#	5100046586	ZT R-KNOB	SF BLK/RED	1
#	5100042401	ZT R-KNOB	MF BLK/SLV	4
#	5100042396	ZT C-KEYTOP	SX1H BLK	11
#	5100042395	ZT C-KEYTOP	SD1H BLK/CLR	58
#	5100042397	ZT S-KEYTOP	SD1H BLK/CLR	16
	5100037825	G S-BUTTON	BLK (710-12058-15-00)	1

SWITCH

	02781634	TACT SWITCH	SKRGAED010	85
	04904123	PUSH SWITCH AC POWER SUPPLY	400-07040-01-00(PWL-2P2T-6SBP	1

JACK, EXT TERMINAL

	02456390	3.5MM JACK	STEREO YKB21-5290	4
	13449275	6.5MM JACK	YKB21-5074	4
	13449252	6.5MM JACK	YKB21-5006 (STEREO W/SW)	4
	02900312	DC JACK	HEC0470-01-640	1
	13429676	MIDI CONNECTOR	YKF51-5048V(TWIN)	1
	5100014678	CANNON CONNECTOR	CT/PJ-02-EP	1
	04459190	USB CONNECTOR A TYPE FEMALE	YKF45-0033N	1
	5100010665	USB CONNECTOR B TYPE FEMALE	2549A-04G2T(610-02001-04-00)	1

DISPLAY UNIT

	5100041314	LCD	221-1162-2123	1

KEYBOARD ASSY

	5100009856	KEYBOARD ASSY MSK-249 AFT	W/O CABLE (990-06022-10-02)	1

PWB ASSY

#	5100042729	MAIN BOARD ASSY		1
#	5100042730	ANALOG JACK BOARD ASSY		1
#	5100042731	PANEL L SHEET ASSY		1
	* *This unit includes the following parts.*			
#	********	PANEL L BOARD		1
#	********	SIDE BOARD		1
#	********	WHEEL BOARD		1
#	********	ENCODER1 BOARD		1
#	********	ENCODER2 BOARD		1
#	********	ENCODER3 BOARD		1
#	********	AFTER BOARD		1

PWB ASSY

#	5100042732	PANEL R SHEET ASSY		1
	* *This unit includes the following parts.*			
#	********	PANEL R BOARD		1
#	********	ENCODER4 BOARD		1

DIODE

	5100019998	LED	DKA13SR053G(F5229831R0)	6
#	5100041421	LED	WW-BIS190TS-G	11
	5100036746	LED	WW-FCE50TC-Q1(BTF)	16
	5100036498	LED	WW-GIS190TS-G	14
	5100036720	LED	WW-OR190TS-J	146

POTENTIOMETER

#	5100041025	ENCODER	EC18AGA20402	4
	04901712	ROTARY POTENTIOMETER	RK09K1110D4S	1
#	5100041032	ROTARY POTENTIOMETER	XV09223NPV25F972Z10K/I	21
#	5100041031	ROTARY POTENTIOMETER	XV09223NPV25F972Z10KCC/I	7
	5100037657	SLIDE POTENTIOMETER	C3080G1AV1B103BA00B3	15
#	5100043757	SLIDE POTENTIOMETER	C3080G1AV1B103BA01BF	3

WIRING, CABLE

#	5100046504	FLAT CABLE	SML2CD-14X70-BDX8(BL)-P1.0-S4	4
#	5100046505	FLAT CABLE	SML2CD-14X80-BDX8(BL)-P1.0-S4	1
	5100022474	FLAT CABLE	SML2CD-20X40-BDX8(BL)-P1.0	1
#	5100046508	FLAT CABLE	SML2CD-22X550-BDX8(BL)-P1.0-S	1
#	5100046507	FLAT CABLE	SML2CD-24X360-BDX8(BL)-P1.0-S	1
#	5100046509	FLAT CABLE	SML2CD-24X40-BDX8(BL)-P1.0-S4	1
#	5100046506	FLAT CABLE	SML2CD-38X40-BDX8(BL)-P1.0-S4	1
#	5100046512	WIRING	1061#28 14X450-PHR-PHR-F	1
	5100039038	WIRING	1061#28 3X80-PHR-PHR-F	1
#	5100045471	WIRING	1061#28 4X100-PHR-PHR-F	1
	5100043932	WIRING	1061#28 4X60-PHR-PHR-F	2
#	5100046510	WIRING	1061#28 7X110-PHR-PHR-F	1
#	5100046511	WIRING	1061#28 8X40-PHR-PHR-F	1
#	5100046513	WIRING	1061#28 8X450-PHR-PHR-F	1
	04569890	WIRING	CA ASSY 26WAY 400MM W/2 HX2	1

SCREWS

	5100034002	SCREW M3X12	PAN MACHINE W/SMW+PW BZC	1
	40454856	SCREW M4X10	BINDING MACHINE NI	1
	5100038406	SCREW 2.6X6	BINDING TAPTITE P BZC	4
	40011312	SCREW 3X8	BINDING TAPTITE P FE BZC	~~98~~ 96
#	5100044863	SCREW 3X8	HEX SOCKET HEAD TAPTITE B BZC	10
	40011334	SCREW 3X12	BINDING TAPTITE P FE BZC	~~12~~ 14
	40011323	SCREW 3X10	BINDING TAPTITE P BZC	4
	40012345	SCREW 4X10	BINDING TAPTITE B BZC	4
	40012490	SCREW 4X10	BINDING TAPTITE P BZC	15

MISCELLANEOUS

	5100035565	BENDER	PB-H0301-BK	1
#	5100042659	BENDER WHEEL ASSY		1
	5100027106	CORD HOOK	40516-014	1
#	5100044793	JD BADGE		1
#	5100044791	ROLAND BADGE		1
	5100037792	R-KNOB ESCUTCHEON	CLR	28
	5100037876	S-KNOB ESCUTCHEON	CLR	18
	12359137	RUBBER FOOT	SJ-5012 BLK	5
	5100032738	TERMINAL	PCB-12(M4)	1
	5100003695	TERMINAL	PCB-12	1
#	5100044851	INSULATING SHEET		1
	5100044220	LCD SHIELD SHEET		1
#	5100046310	SHIELD SHEET		1
	5100010674	DISPLAY CUSHION		1
	40120967	COATING CLIP	CS-3	1
	5100027814	LOCKING CABLE	TIE CV-100V0K	4
	40122812	ACETATE TAPE	NITTO #5 BLACK W15MM 30M	-
	40122490	DOUBLE-FACED TAPE	#500 W5MM 20M 40P	-
	40122534	DOUBLE-FACED TAPE	#500 W3MM 20M 136P	-
	40122645	NITTO FILAMENT TAPE	#3883 W19MM 50M 60P (CM)	-

ACCESSORIES (Standard)

	⚠	04236112	AC ADAPTOR	PSB-7U(S)DC WITHOUT AC CORD		1
	⚠	5100029121	AC CORD SET	100V 1.0M	for 100V	1
	⚠	5100012293	AC CORD SET	117VBL 1.0M FOR PSB	for 117VBL	1
	⚠	5100000692	AC CORD SET	117V U 1.0M	for 117VU, 117VU/CS	1
	⚠	5100000564	AC CORD (CCC) 220V CN	452-04038-02-01	for 220VCN	1
	⚠	5100039367	AC CORD	SP021A+IS037 220VK 2.5M 2P	for 220VK	1
	⚠	5100018086	AC CORD SET	230VE 1.0M FOR EPS	for 230VE	1
	⚠	05017301	AC CORD SET	230V 1.0M FOR EU	for 230VEU	1
	⚠	5100029122	AC CORD SET	240V 1.0M FOR PSB	for 240VA	1
#		5100045491	OWNER'S MANUAL	MULTILANGUAGE		1

Verifying the Version

1. Press **MENU**.
2. Press ► to select **VERSION INFO**.
3. Press **Enter**.
   The system version is displayed.
4. Press **Exit** several times to return to the initial screen.

Data Backup and Restore Operations

Formatting a USB Memory Device

1. Connect a USB memory device to the **USB MEMORY** connector.
2. Press **MENU**.
3. Press ◄ or ► to select **UTILITY**, then press **Enter**.
4. Press ► to select **USB MEM FORMAT**, then press **Enter**.
   A confirmation message is displayed.
5. To execute formatting, press **Enter**. To cancel it, press **Exit**.
   Pressing **Enter** executes formatting. When the message **Completed!** appears, formatting has finished.
6. Detach the USB memory device.

Data Backup Operations

Items Required

- USB memory device (recommended: M-UF2G)

Procedure

1. Format a USB memory device—refer to **Formatting a USB Memory Device** (p. 23).
2. Connect the formatted USB memory device to the **USB MEMORY** connector.
3. Press **MENU**.
4. Press ◄ or ► to select **UTILITY**, then press **Enter**.
5. Press ◄ to select **BACKUP**, then press **Enter**.
   A screen for inputting the file name appears.
6. If necessary, using **+**, **-**, ◄ or ► , change the file name.
7. To execute the backup operation, press **Enter**. To cancel it, press **Exit**.
   A confirmation message is displayed.
8. To execute the backup operation, press **Enter**. To cancel it, press **Exit**.
   Pressing **Enter** executes the backup operation. When the message **Completed!** appears, the backup operation has finished.
9. Detach the USB memory device.

Data Restore Operations

1. Connect the USB memory device containing the backed-up user data to the **USB MEMORY** connector.
2. Press **MENU**.
3. Press ◄ or ► to select **UTILITY**, then press **Enter**.
4. Press ◄ or ► to select **RESTORE**, then press **Enter**.
   A screen for selecting the file to restore appears.
5. Using **+** or **-**, select the file to restore.
6. To execute the restore operation, press **Enter**. To cancel it, press **Exit**.
   A confirmation message is displayed.
7. To execute the restore operation, press **Enter**. To cancel it, press **Exit**.
   Pressing **Enter** executes the restore operation. When the message **Completed! Turn off power.** appears, the restore operation has finished.
8. Detach the USB memory device and reset the power.

Performing a Factory Reset

1. Press **MENU**.
2. Press ◄ or ► to select **UTILITY**, then press **Enter**.
3. Press ◄ or ► to select **FACTORY RESET**, then press **Enter**.
   A confirmation message is displayed.
4. To execute the factory reset, press **Enter**. To cancel it, press **Exit**.
   Pressing **Enter** executes the factory reset. When the message **Completed! Turn off power.** appears, the factory reset has finished.
5. Reset the power.

Updating the System

Items Required

- Computer
- USB memory device (recommended: M-UF2G)
- Update file (JDXA_UPA.BIN) (obtained via Service Net)

Procedure

1. Format a USB memory device using the FAT32 file system.
2. Copy the update file to the root folder of the USB memory device.
3. While the power to the unit is switched off, insert the USB memory device just described into the **USB MEMORY** connector.
4. Hold down **TAP** and switch on the power.
   Continue to hold down **TAP** until **Update** appears on the screen.
   The update starts.
   The update takes approximately 1 minute to complete. When **Finished.** appears, the update has finished.
5. Detach the USB memory device and switch off the power.

Test Mode

Items Required

- Computer (running Windows 7)
- USB memory device (recommended: M-UF2G)
- USB cable
- MIDI cable
- Foot switch (DP-2, etc.)

- Expression pedal (EV-5) x 2

* *Adjust the minimum volume knob to **0**.*

- Oscilloscope
- Noise meter
- Tester

- R-05

* ***14. MIC IN (XLR)** (p. 29) and **16. MIC IN (TRS)** (p. 29) can also be tested with an oscillator and a DI-1.*

- Amp-equipped monitor speaker
- Headphones
- Dummy plug

- USB driver
  Obtain this from the following web pages, and install it on the computer just described.
  http://www.roland.co.jp/
  http://www.roland.com/

- KY004_MIC.WAV
  Obtain via Service Net, and copy it to the SD card in the R-05 just described.

- KY004_USB.WAV
  Obtain via Service Net, and copy it on the computer just described.

Entering the Test Mode

Hold down **01**, **03** and **05** and switch on the power.

* *Continue to hold down the three buttons above until the version is displayed on the screen.*

Quitting the Test Mode

Switch off the power.

Skipping Test Items

Shift + ► : This forces execution to advance to the next test item.
Shift + ◄ : This forces execution to return to the previous test item.

Shift + **Menu**: The test item select screen appears.
Use ◄ or ► to select the test item, then press **Enter** to jump to the item.

* *Some test items cannot be accomplished correctly unless testing is performed in sequence.*

* *If pressing **Shift + Menu** in some test items, you can not return to the test item select screen.*

Test Items

Test items of **23–25** are carried out in the normal mode.

1. Version

This verifies the version of the program.

```
+--------------------+
|Appli:1.01(00**)|
|yy/mm/dd **:**  |
+--------------------+
```

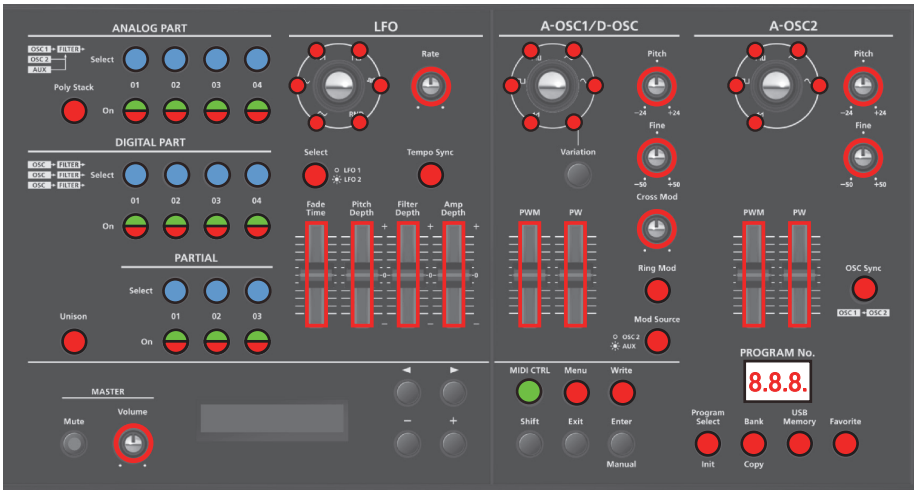
The version of the program is displayed on the screen.

1. After verifying the version, press **+**.
The boot version is displayed.

```
+--------------------+
|Boot :1.00(00**)|
|yy/mm/dd **:**  |
+--------------------+
```

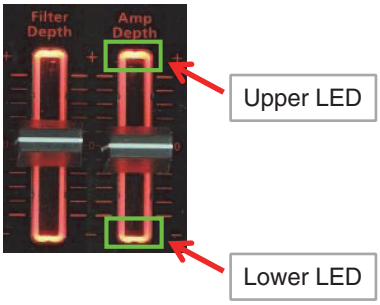
Verify the boot version.

2. Verify that each LED lights up as shown in the figure below.

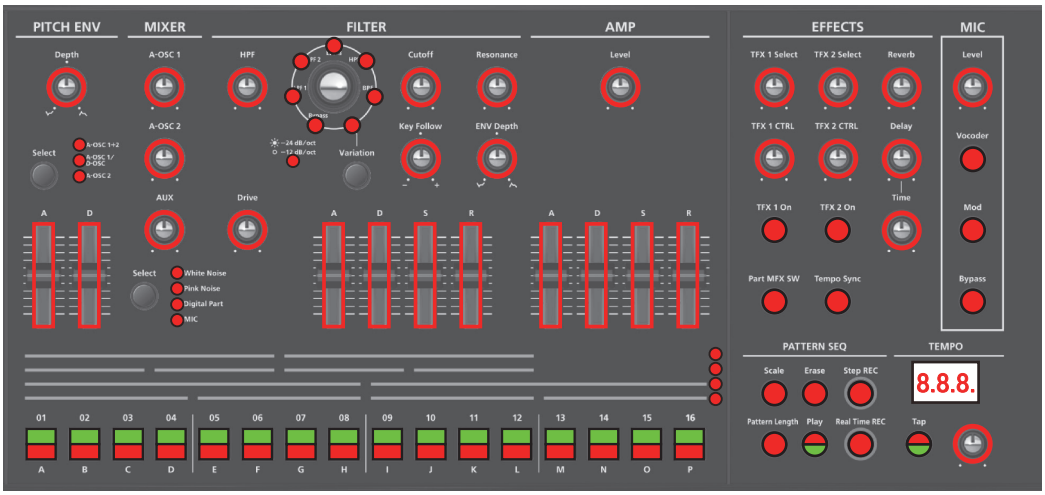


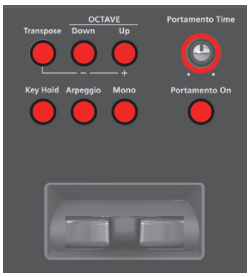
* ***Mute*** *is dark.*

*  *means that it lights up both red and green*



* *LEDs of the slide volume are at the top and bottom ends.*

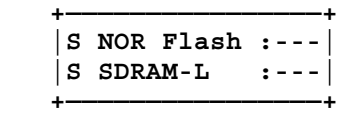




3. Connect the USB memory device to the **USB MEMORY** connector, and press ► to advance to the next test item.

2. Device

Various devices are checked automatically.



1. SSC NOR Flash
2. SSC SDRAM-L
3. SSC SDRAM-H
4. SSC DSP
5. SSC DSP RAM
6. SSC WAVE ROM
7. SSC USB MEMORY
8. ESC2A Serial Flash
9. ESC2A SDRAM
10. ESC2A DSP
11. ESC2A Serial I/O (ESC2A <-> ESC2E)
12. ESC2A Keyboard CPU (FM3 <-> ESC2A)
13. ESC2E Serial Flash
14. ESC2E SDRAM
15. ESC2E DSP
16. ESC2E DSP RAM
17. ESC2E Serial I/O (ESC2E <-> SSC)
18. WAVE CHECK SUM

The test result (**OK** or ***NG** (not OK)) is displayed next to the corresponding device.

When all devices become **OK**, **Remove USB Mem**. is displayed. When the USB memory device is disconnected, after several seconds, execution automatically advances to the next test item.

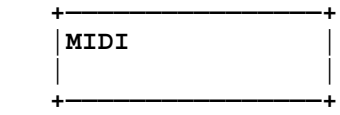
* *The check results for the entire Wave ROM area are not displayed here. Checking starts here and continues in the background while the other tests are executed. For the test results, check* ***18. Wave ROM*** *(p. 30).*

3. USB Over Current

This test is not required in servicing.
Use **Shift** + ► to advance to the next test item.

4. MIDI

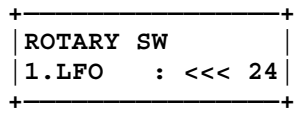
This verifies the operation of the MIDI IN and OUT connectors.



1. Using the MIDI cable, connect the **MIDI IN** and **MIDI OUT** connectors.
   The message **Connect** is displayed.
2. Detach the MIDI cable.
   Disconnect is displayed, and execution automatically advances to the next test item.

5. ROTARY SW

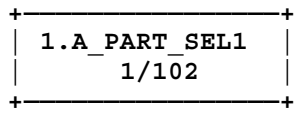
This verifies the rotary switch operation.



1. Turn the rotary switch of **LFO** counterclockwise.
   Value on the screen decreases from **24** to **0** in sequence.
2. Turn the rotary switch of **LFO** clockwise.
   Value on the screen increases from **0** to **23**, and then **OK** is displayed.
3. For the rotary switches of **A-OSC1/D-OSC**, **A-OSC2** and **FILTER**, execute steps **1** and **2**.
   When **OK** is displayed for the rotary switch of **FILTER**, execution automatically advances to the next test item.

6. Switch/LED

This verifies the operations of LED-equipped switches.



Press the buttons which LEDs light up in sequence and verify that the value displayed on the screen increases.

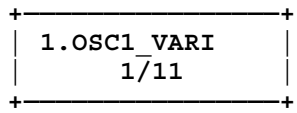
* *The following buttons have 2-color LEDs. Verify that pressing once makes the button change color, and pressing again makes it go dark.*

- **ANALOG PART 01–04**
- **DIGITAL PART 01–04**
- **PARTIAL 01–03**
- **01 A–16 P**
- **PATTERN SEQ Play**
- **TEMPO Tap**

When all buttons have been pressed, execution automatically advances to the next test item.

7. Switch

This verifies the operations of switches that have no LED.



Press the following buttons in sequence. The name of buttons are also displayed on the screen.
A-OSC1/D-OSC Variation,
PITCH ENV Select,
MIXIER AUX Select,
Filter Variation,
◄ , ► , **-**, **+**,
Shift, **Exit**, **Enter**

When all buttons have been pressed, execution automatically advances to the next test item.

8. LED

This verifies the illumination of the LEDs.

```
+--------------------+
| 1.LFO_TRI          |
|       1/84         |
+--------------------+
```

1. Verify that the LED displayed on the screen lights up
2. Press **Enter**.
   The LED goes dark and the next LED lights up.
3. In the same way, carry out steps **1** and **2** for all LEDs.

* *The segments of the 7-segment LED display light up in sequence, one segment at a time.*

4. When the last segment for the 7-segment LED display lights up, press Enter again.
   Execution advances to the next test item.

9. LCD

This verifies the display of the screen.

```
+--------------------+
|Press [ENTER]       |
|LCD Check           |
+--------------------+
```

1. Press **Enter**.
   All dots light up.
2. Press **Enter**.
   All dots go dark.
3. Press **Enter**.
   A screen like the one shown below is displayed.

```
+--------------------+
|Press [ENTER]       |
|Contrast Check      |
+--------------------+
```

4. Press **Enter**.
   Contrast is maximized.
5. Press **Enter**.
   Contrast is minimized.
6. Press **Enter**.
   A screen like the one shown below is displayed.

```
+--------------------+
|Press [>]           |
|                    |
+--------------------+
```

7. Press ► to advance to the next test item.

10. A/D

This verifies the operations of volumes, pitch bend/modulation lever, modulation wheels, pedals and the keyboard aftertouch.

```
+--------------------+
|WHEEL1        :---  |
|       1/54         |
+--------------------+
```

* *At the same time when this test item is enabled, the midpoint calibration of the pitch bender and the minimum value calibration of the modulation lever start. Do not touch the pitch bend/modulation lever.*
*Enabling this test item while the pitch bend/modulation lever is at an angle causes the messages **BEND ADJ ERR!** or **MOD ADJ ERR!** to appear. In this case, re-enter the test item while the pitch bend/modulation lever is not touched.*

1. Connect a foot switch to the **HOLD** jack.
2. Connect the expression pedals to the **CTRL 1** and **2** jacks.
3. Operate each component which LED lights up from minimum to maximum, and verify that the value displayed on the screen changes from **0** to **127**.

   At the aftertouch test, slowly press the center C key, and verify that the displayed value changes from **0** to **127**.

   For the volume without center click, check the minimum value (**0**) and maximum value (**127**). For the volume with center click, check the minimum value (**0**) and maximum value (**127**), and then check the center value (**64**).

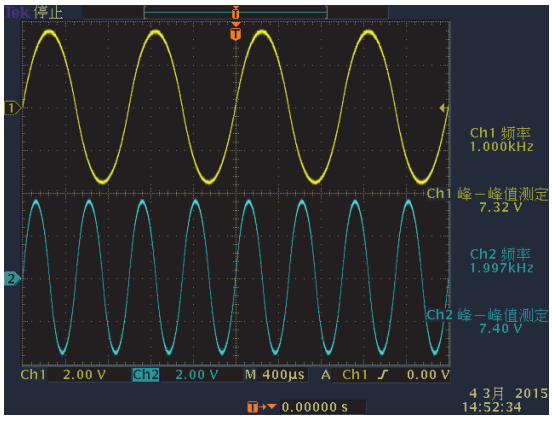
   At last, the **Portamento Time** volume test ends, **Remove Pedals**. is displayed.
4. Detach the foot switch and the expression pedal.
   Execution automatically advances to the next test item.

11. Phones Out

This verifies the operation of the **PHONES** jack.

```
+--------------------+
|Phones Out :SINE    |
|Press [>]           |
+--------------------+
```

1. Connect the oscilloscope to the **PHONES** jack, then verify that signals like the ones shown below are output.
   PHONES L: 1-kHz sine wave at 7.0±2.0 Vpp
   PHONES R: 2-kHz sine wave at 7.0±2.0 Vpp



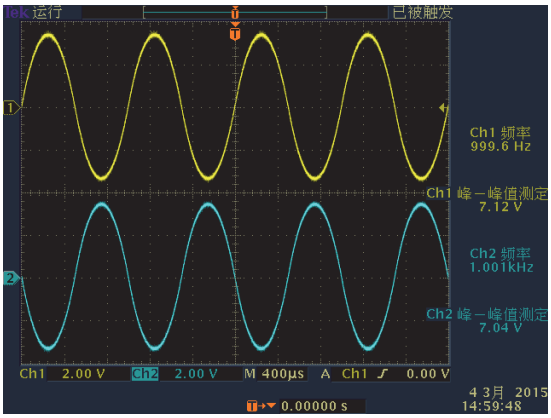
2. Detach the oscilloscope.
3. Press ► to advance to the next test item.

12. Main Out (L/MONO, R)

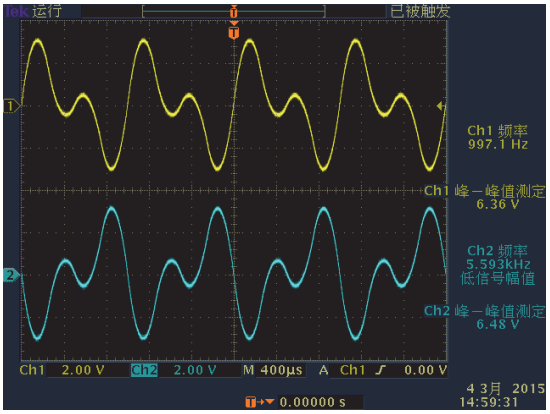
This verifies the operations of the **OUTPUT L/MONO** and **R** jacks.

```
+--------------------+
|Main Out    :SINE|
|Press [>]          |
+--------------------+
```

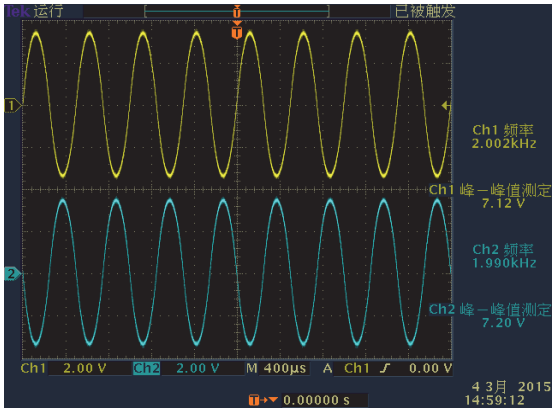
1. Connect a dummy plug to the **OUTPUT R** jack.
2. Connect the oscilloscope to the **OUTPUT L/MONO** jack, and verify that signals like the ones shown below are output.
   L/MONO (Tip): 1-kHz sine wave at 7.0±2.0 Vpp
   L/MONO (Ring): 1-kHz sine wave at 7.0±2.0 Vpp



3. Detach the dummy plug.
4. Verify that a signals like the ones shown below are output from the **OUTPUT L/MONO** jacks.



5. Detach the oscilloscope.
6. Connect the oscilloscope to the **OUTPUT R** jack, and verify that signals like the ones shown below are output.
   R (Tip): 2-kHz sine wave at 7.0±2.0 Vpp
   R (Ring): 2-kHz sine wave at 7.0±2.0 Vpp



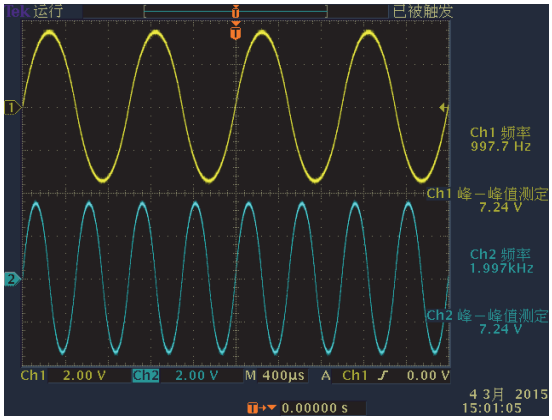
7. Detach the oscilloscope.
8. Press ► to advance to the next test item.

13. CLICK OUT

This verifies the operation of the **CLICK** jack.

```
+--------------------+
|Click Out   :SINE|
|Press [>]          |
+--------------------+
```

1. Connect the oscilloscope to the **CLICK** jack, then verify that signals like the ones shown below are output.
   CLICK (Tip): 1-kHz sine wave at 7.0±2.0 Vpp
   CLICK (Ring): 2-kHz sine wave at 7.0±2.0 Vpp



2. Detach the oscilloscope.
3. Press ► to advance to the next test item.

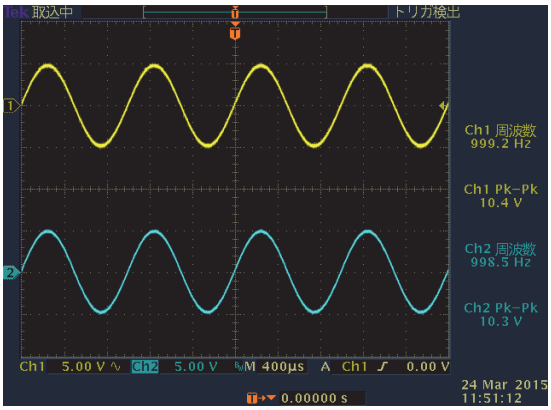
14. MIC IN (XLR)

This verifies the operation of the **MIC INPUT** (XLR) connector.

```
+--------------------+
|MIC IN (XLR)        |
|                    |
+--------------------+
```

1. Set **Player Setup Repeat** of the R-05 to **ON**, and the volume level to maximum.
2. Connect the R-05 to the **MIC INPUT** (XLR) connector and play **KY004_MIC.WAV**.
   Or, connect the oscillator to the **INPUT** connector of the DI-1, and connect the **BALANCE OUT** connector of the DI-1 to the **MIC INPUT** (XLR) connector of the JD-XA, and output the signal like the one shown below from the oscillator.
   1-kHz sine wave at 11±1.5 mVpp
3. Adjust the **LEVEL** knob of the **MIC INPUT** connector to maximum.
4. Connect the oscilloscope to the **OUTPUT L/MONO** and **R** jacks, and verify that signals like the ones shown below are output.
   L/MONO (Tip): 1-kHz sine wave at 10.0±2.0 Vpp
   R (Tip): 1-kHz sine wave at 10.0±2.0 Vpp

* *When verifying the signal of the **OUTPUT L/MONO** jack, connect a plug also to the **OUTPUT R** jack.*



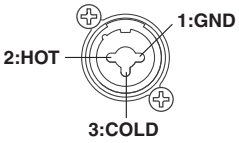
5. Disconnect the cable connected to the **MIC INPUT** (XLR) connector.
   Execution automatically advances to the next test item.

15. MIC DC

This verifies the voltage of the phantom-power at the **MIC INPUT** connector.

```
+--------------------+
|MIC DC              |
|Press [ENTER]       |
+--------------------+
```

1. Press **ENTER**.
2. Using a tester, verify that the voltages of the **MIC INPUT** connector are as follows.
   Between pins 1 and 2: 48±2V
   Between pins 1 and 3: 48±2V



3. Press ► to advance to the next test item.

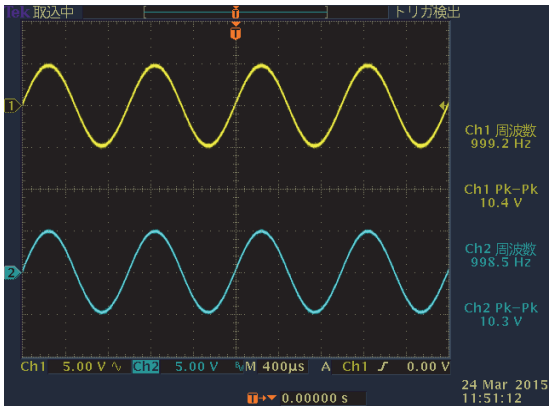
16. MIC IN (TRS)

This verifies the operation of the **MIC INPUT** (TRS) connector.

```
+--------------------+
|MIC IN (TRS)        |
|                    |
+--------------------+
```

1. Set **Player Setup Repeat** of the R-05 to **ON**, and the volume level to maximum.
2. Connect the R-05 to the **MIC INPUT** (TRS) connector and play **KY004_MIC.WAV**.
   Or, connect the oscillator to the **INPUT** connector of the DI-1, and connect the **BALANCE OUT** connector of the DI-1 to the **MIC INPUT** (TRS) connector of the JD-XA, and output the signal like the one shown below from the oscillator.
   1-kHz sine wave at 11±1.5 mVpp
3. Adjust the **LEVEL** knob of the **MIC INPUT** connector to maximum.
4. Verify that signals like the ones shown below are output from the **OUTPUT L/MONO** and **R** jacks.
   L/MONO (Tip): 1-kHz sine wave at 10.0±2.0 Vpp
   R (Tip): 1-kHz sine wave at 10.0±2.0 Vpp

* *When verifying the signal of the **OUTPUT L/MONO** jack, connect a plug also to the **OUTPUT R** jack.*



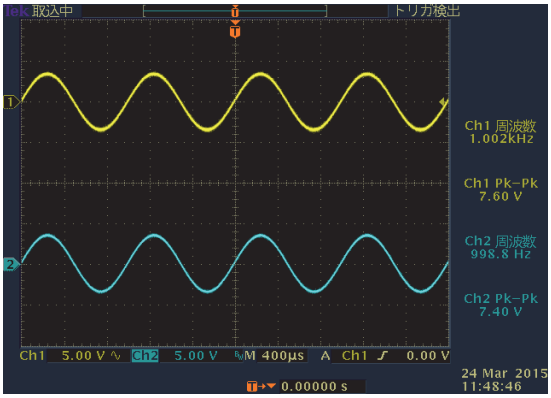
5. Turn the **LEVEL** knob to maximum, then minimum, then maximum, and verify that the wave form changes smoothly.
6. Disconnect the cable connected to the **MIC INPUT** (TRS) connector.
   Execution automatically advances to the next test item.

17. USB FUNC

This verifies the operation of the **USB COMPUTER** connector.

```
+--------------------+
|USB FUNC            |
|Press [>]           |
+--------------------+
```

1. Using the USB cable, connect the computer to the **USB COMPUTER** connector.
2. Play **KY004_USB.WAV** on the computer.
3. Verify that signals like the ones shown below are output from the **OUTPUT L/MONO** and **R** jacks.
   L/MONO: 1-kHz sine wave at 7.0±2.0 Vpp
   R: 1-kHz sine wave at 7.0±2.0 Vpp



4. Detach the PC and the oscilloscope.
5. Press ► to advance to the next test item.

18. Wave ROM

This verifies the results of the check of the entire Wave ROM area.

```
+--------------------+
|Wave ROM:OK         |
|Press [>]           |
+--------------------+
```

This test has started when **2. Device** (p. 26) was executed. If **2. Device Test** was not executed, the test starts at the time when this **18. Wave ROM Test** is executed. While **Wave ROM:Busy** is displayed, the testing is in progress. Wait for the test to finish.

When **OK** appears, press ► to advance to the next test item.

19. MUTE

This verifies muting operation.

```
+--------------------+
|MUTE=Off:[ENTER]    |
|                    |
+--------------------+
```

1. Connect the headphones to the **PHONES** jack and verify that sound is heard.
   * *Using the **MASTER Volume** knob, adjust the volume.*
2. Verify that sound is muted only when **Enter** is pressed.
3. Connect the amp-equipped monitor speakers to the **OUTPUT R** jack (Tip and Ring), and verify that sound is muted only when **Enter** is pressed.
4. Connect the amp-equipped monitor speakers to the **OUTPUT L/MONO** jack (Tip and Ring), and verify that sound is muted only when **Enter** is pressed.
5. Connect the amp-equipped monitor speaker to the **ANALOG DRY** jack, and verify that sound is muted only when **Enter** is pressed.
6. Connect the headphones to the **CLICK** jack, and verify that sound is muted only when **Enter** is pressed.
7. Connect the amp-equipped monitor speakers to the **OUTPUT L/MONO** jack (Tip and Ring).

```
+--------------------+
|MUTE SW [MUTE]      |
|Press [>]           |
+--------------------+
```

8. Press **MUTE** and verify that the sound is muted.
9. Press ► to advance to the next test item.

20. Keyboard

This verifies the operation of the keyboard.

```
+--------------------+
|1/2 Pno             |
|                    |
+--------------------+
```

1. Play all keys, and verify that notes are produced with piano sound. Also verify that the volume level changes according to the velocity with which the keyboard is fingered and the value of **VELO** changes.
2. Press **+**.
   A screen like the one shown below is displayed.

```
+--------------------+
|2/2 Org             |
|                    |
+--------------------+
```

3. Play all keys, and verify that notes are produced with organ sound.
4. Detach the headphones and the amp-equipped monitor speakers.
5. Press ► to advance to the next test item.

21. Factory Reset

This performs a factory reset.

```
+--------------------+
|Press [ENTER]       |
|Factory Reset       |
+--------------------+
```

1. Press **Enter**.
   A factory reset is executed.
   When the factory reset is in progress, **Executing...** is displayed, and when it finishes, execution automatically advances to the next test item.

22. ErP Check

This verifies the operation of the auto power off function.

```
+--------------------+
|Press [WRITE]       |
|ErP Power Off       |
+--------------------+
```

1. Press **Write**, and verify that the power to the unit is switched off.
2. Return the power switch to the off position.

23. Residual Noise Check

This measures residual noise.

Setting of Click Sound

Before measuring the residual noise, it is necessary to set the volume of the click sound output from the **CLICK** jack to **0**.

1. Start up in the normal mode.
2. Press **MENU**.
3. Press ◄ or ► to select **SYSTEM**, then press **Enter**.
4. Hold down **Shift** and press ◄ or ► to select **CLICK**.
5. Press ◄ or ► to select **Level**.
6. Press **-** to set **0**.
7. Press **EXIT** several times to return to the initial screen.

Measuring Residual Noise

1. Set each knob as follows.
   - MASTER Volume: Maximum
   - MIXER A-OSC 1: Maximum
   - MIXER A-OSC 2: Maximum
   - MIXER AUX: Maximum
   - FILTER Cutoff: Maximum
   - AMP Level: Maximum
   - AMP S (envelope): Maximum
   - WHEEL 2: Center
   - MIC INPUT LEVEL (rear panel): Center
   - Others: Minimum
2. Verify that residual noise at each jack is as follows. (all levels in DIN-Audio, AVE)
   - PHONES (L): -76 dBm or lower
   - PHONES (R): -76 dBm or lower
   - OUTPUT L/MONO (Tip): -86 dBm or lower
   - OUTPUT L/MONO (Ring): -86 dBm or lower
   - OUTPUT R (Tip): -86 dBm or lower
   - OUTPUT R (Ring): -86 dBm or lower
   - ANALOG DRY: -86 dBm or lower
   - CLICK (Tip): -76 dBm or lower
   - CLICK (Ring): -76 dBm or lower

* *When verifying the noise of the **OUTPUT L/MONO** jack, connect a plug also to the **OUTPUT R** jack.*

24. Pop Noise Check

This verifies the pop noise when power is turned on or off.

1. Set each knob in the same way as **23. Residual Noise Check** (p. 31).
2. Connect the headphones to the **PHONES** jack and verify that no abnormal sound is heard when the power is tuned on or off.

* *Wait three seconds or more between on and off. This is the same in the following steps.*

3. Connect the headphones to the **CLICK** jack and verify that no abnormal sound is heard when the power is tuned on or off.
4. Connect the amp-equipped monitor speakers to the **OUTPUT L/MONO** (Tip and Ring) jack, and verify that no abnormal sound is heard when the power is tuned on or off.
5. Connect the amp-equipped monitor speakers to the **OUTPUT R** (Tip and Ring) jack, and verify that no abnormal sound is heard when the power is turned on or off.
6. Connect the amp-equipped monitor speaker to the **ANALOG DRY** jack, and verify that no abnormal sound is heard when the power turned is on or off.

25. Aftertouch Check

This verifies the aftertouch operation.

1. Connect the headphones to the **PHONES** jack.
2. Press the leftmost key forcefully and verify that aftertouch is operating.

* *You should choose **INT: 004** for tone.*

3. Press the rightmost key forcefully and verify that aftertouch is operating.

Analog Adjustment Mode

Items Required

- Oscilloscope
- Tester (measurable to 10mV)

Entering the Analog Adjustment Mode

Hold down **01**, **03** and **04** and switch on the power.

* *Continue to hold down the three buttons above until the version is displayed on the screen.*

Quitting the Analog Adjustment Mode

Switch off the power.

Skipping Test Items

This is the same as **Skipping Test Items** (p. 24).

Test Items

1. Version

This is the same as **1. Version** (p. 24).
Press ► to advance to the next test item.

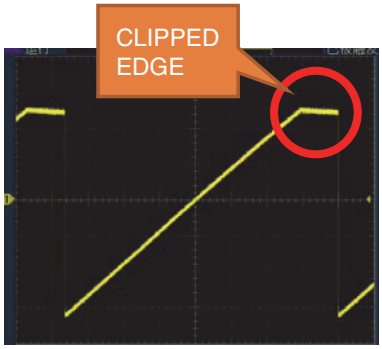
2. OSC Adjust

This adjusts the wave form and the level of the saw wave of each oscillator.

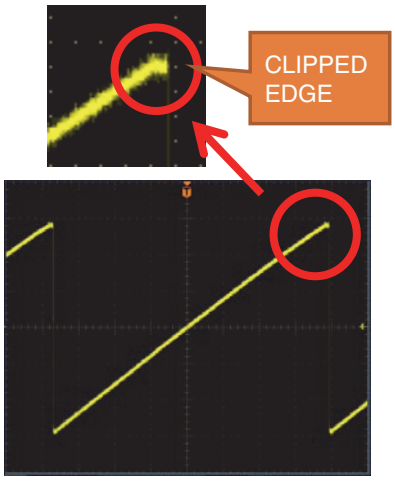
```
+--------------------+
|A1-OSC1:        **|
|Press [ENTER]      |
+--------------------+
```

1. Connect the oscilloscope to the **ANLALOG DRY** jack.
65-Hz (C2) saw wave is output.

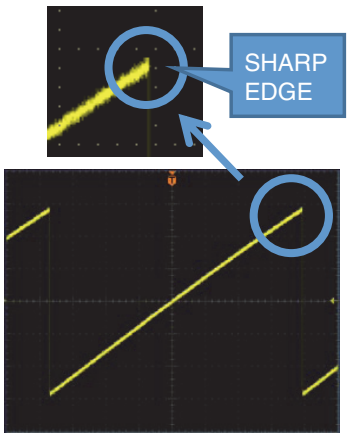
2. Press **+** or **-** to change the degree of leaning of the saw wave and adjust so that clipping disappears as shown in the figure below.



Not OK



Not OK



OK

3. Press **+** or **-**, and when the value on the screen becomes **93**, press **Enter**.
1,046 Hz (C6) saw wave is output and a screen like the one shown below appears.

```
+--------------------+
|A1-OSC1:    ( **)|
|Press [ENTER]      |
+--------------------+
```

4. Verify that there is no clip on the wave and the value on the screen is in the range of **80** to **93**, and then press **Enter**.
Execution advances to the adjustment of the next wave form.

5. For **A1-OSC2**, **A2-OSC1**, **A2-OSC2**, **A3-OSC1**, **A3-OSC2**, **A4-OSC1** and **A4-OSC2**, adjust in the same way as steps **2** through **4**.

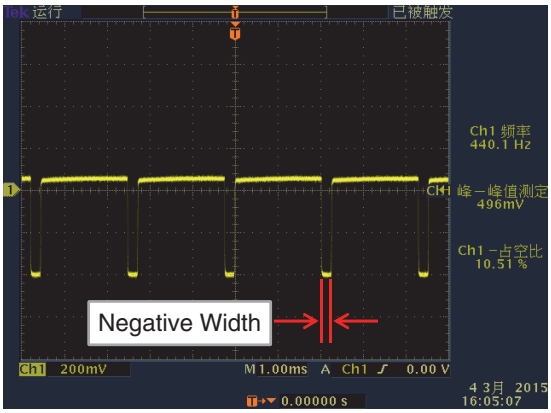
6. Press **Write**.
The results of adjustment are written and execution advances to the next test item.

3. Pulse Width Check

This verifies the Duty ratio of pulse wave of oscillator.

```
+--------------------+
|A1-OSC1:  PW 10%|
|Press [ENTER]    |
+--------------------+
```

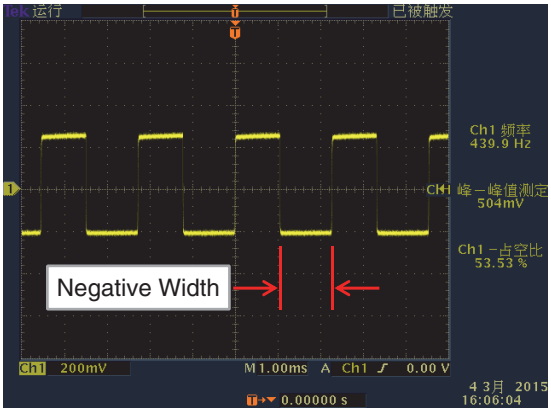
1. Verify that the pulse width shown in the figure is shorter than **0.3 ms**.



2. Press **Enter**.
   A screen like the one shown below is displayed.

```
+--------------------+
|A1-OSC1:  PW 50%|
|Press [ENTER]    |
+--------------------+
```

3. Verify that the pulse width shown in the figure is in the range of **0.9** to **1.4 ms**.



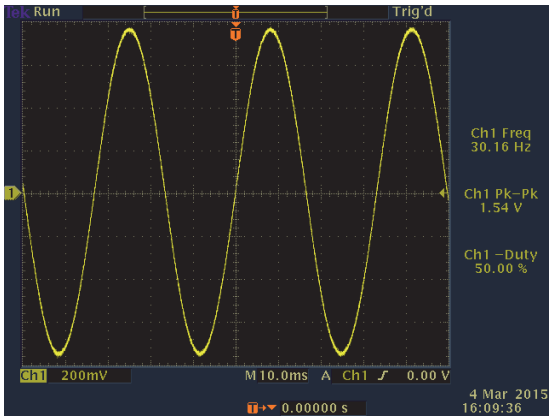
4. Press **Enter**.
   Execution advances to the check of the next wave form.
5. For **A1-OSC2**, **A2-OSC1**, **A2-OSC2**, **A3-OSC1**, **A3-OSC2**, **A4-OSC1** and **A4-OSC2**, verify in the same way as steps **1** through **4**.
6. Press ► to advance to the next test item.

4. VCF1 Check

This verifies the circuit of VCF1 (4-pole OTA Filter).

```
+--------------------+
|A1-VCF1: CUT Min|
|Press [ENTER]    |
+--------------------+
```

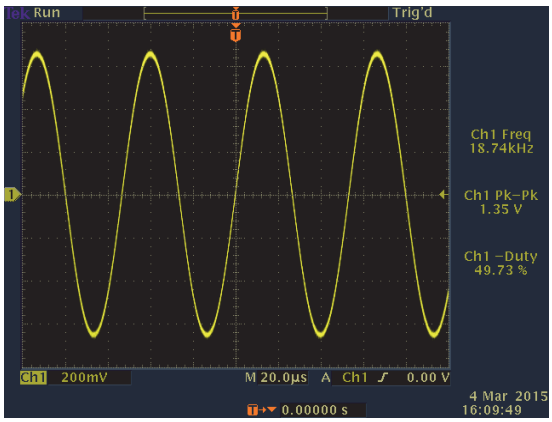
1. Verify that the frequency of the signal shown in the figure is lower than **40 Hz**.



2. Press **Enter**.
   A screen like the one shown below is displayed.

```
+--------------------+
|A1-VCF1: CUT Max|
|Press [ENTER]    |
+--------------------+
```

3. Verify that the frequency of the signal shown in the figure is higher than **8 kHz**.



4. Press **Enter**.
   A screen like the one shown below is displayed.

```
+--------------------+
|A1-VCF1: RES Min|
|Press [ENTER]    |
+--------------------+
```

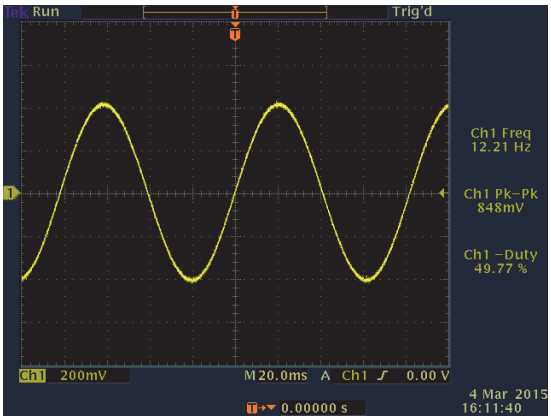
5. Verify that no signal is output, and then press **Enter**.
   Execution advances to the check of the next wave form.
6. For **A2-VCF1**, **A3-VCF1** and **A4-VCF1**, verify in the same way as steps **1** through **5**.
7. Press ► to advance to the next test item.

5. VCF2 Check

This verifies the circuit of VCF2 (Transistor Ladder Filter).

```
+--------------------+
|A1-VCF2: CUT Min|
|Press [ENTER]    |
+--------------------+
```

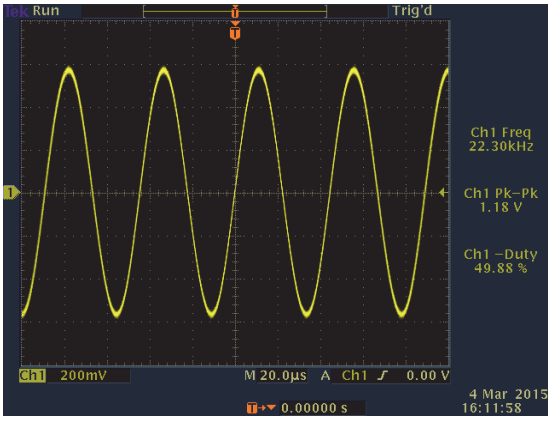
1. Verify that the frequency of the signal shown in the figure is lower than **20 Hz**.



2. Press **Enter**.
A screen like the one shown below is displayed.

```
+--------------------+
|A1-VCF2: CUT Max|
|Press [ENTER]    |
+--------------------+
```

3. Verify that the frequency of the signal shown in the figure is higher than **8 kHz**.



4. Press **Enter**.
A screen like the one shown below is displayed.

```
+--------------------+
|A1-VCF2: RES Min|
|Press [ENTER]    |
+--------------------+
```

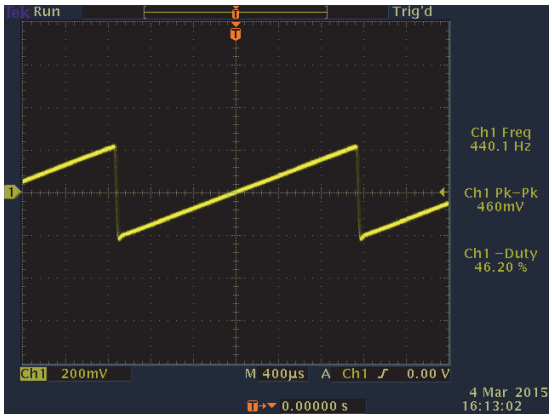
5. Verify that no signal is output, and then press **Enter**.
Execution advances to the check of the next wave form.
6. For **A2-VCF2**, **A3-VCF2** and **A4-VCF2**, verify in the same way as steps **1** through **5**.
7. Press ► to advance to the next test item.

6. VCF3 Check

This verifies the circuit of VCF3 (State Variable Filter).

```
+--------------------+
|A1-VCF3: CUT Max|
|Press [ENTER]    |
+--------------------+
```

1. Verify that a signal like the one shown in the figure is output.



2. Press **Enter**.
A screen like the one shown below is displayed.

```
+--------------------+
|A1-VCF3: CUT Min|
|Press [ENTER]    |
+--------------------+
```

3. Verify that no signal is output, and then press **Enter**.
Execution advances to the check of the next wave form.
4. For **A2-VCF3**, **A3-VCF3** and **A4-VCF3**, verify in the same way as steps **1** through **3**.
5. Press ► to advance to the next test item.

7. Routing Check

This verifies the signal flow of each oscillator and filter.

```
+--------------------+
|A1-Routing1:  ON|
|Press [ENTER]    |
+--------------------+
```

1. Verify that a signal is output, and then press **Enter**.
2. For **A1-Routing2** through **9**, verify in the same way as step **1**.

* *Wave forms are different for each routing.*

At last, when **Enter** is pressed, a screen like the one shown below appears.

```
+--------------------+
|A1-Routing10:OFF|
|Press [ENTER]    |
+--------------------+
```

3. Verify that no signal is output, and then press **Enter**.
4. For **A1-Routing11** and **12**, verify in the same way as step **3**.
5. For **A2-Routing1** through **A2-Routing12**, verify in the same way as steps **1** through **4**.
6. For **A3-Routing1** through **A3-Routing12**, verify in the same way as steps **1** through **4**.
7. For **A4-Routing1** through **A4-Routing12**, verify in the same way as steps **1** through **4**.
8. Press ► to advance to the next test item.

8. CV Adjust

This adjusts the output voltage of the **CV OUT 1** and **2** jacks.

```
+--------------------+
|CV1 0V[1]:     **|
|Press [ENTER]     |
+--------------------+
```

1. Connect the monaural miniature phone jack to the **CV OUT 1** jack.
2. Using the tester, while measuring the output voltage of the **CV OUT 1** jack, press **+** or **-** to adjust the output voltage to **0±0.01 V**.
3. Press **Enter**.
   A screen like the one shown below is displayed.

```
+--------------------+
|CV1 5V[1]:     **|
|Press [ENTER]     |
+--------------------+
```

4. In the same way, press **+** or **-** to adjust the output voltage to **5±0.01 V**.
5. Press **Enter**.
   A screen like the one shown below is displayed.

```
+--------------------+
|CV1 0V[2]:     **|
|Press [ENTER]     |
+--------------------+
```

6. In the same way, press **+** or **-** to adjust the output voltage to **0±0.01 V**.
7. Press **Enter**.
   A screen like the one shown below is displayed.

```
+--------------------+
|CV1 5V[2]:     **|
|Press [ENTER]     |
+--------------------+
```

8. In the same way, press **+** or **-** to adjust the output voltage to **5±0.01 V**.
9. Press **Enter**.
   A screen like the one shown below is displayed.

```
+--------------------+
|CV1 0V:    (  **)|
|Press [ENTER]     |
+--------------------+
```

10. Verify that the output voltage is **0±0.01 V**.
11. Press **Enter**.
12. For the **CV OUT 2** jack, carry out the adjustment and verifying in the same way as steps **1** through **9**.
13. Press **Write**.
    The results of adjustment are written and execution advances to the next test item.

9. GATE Check

This verifies the output voltage of the **GATE OUT 1** and **2** jacks.

```
+--------------------+
|GATE1:          ON|
|Press [ENTER]     |
+--------------------+
```

1. Verify that the output voltage of the **GATE OUT 1** jack is higher than **4 V**.
2. Press **Enter**.
   A screen like the one shown below is displayed.

```
+--------------------+
|GATE1:         OFF|
|Press [ENTER]     |
+--------------------+
```

3. Verify that the output voltage of the **GATE OUT 1** jack is lower than **0.5 V**.
4. Press **Enter**.
5. For the **GATE OUT 2** jack, verify in the same way as steps **1** through **3**.
6. Press ►.
   A screen like the one shown below is displayed.

```
+--------------------+
|   Completed.     |
| Turn off power.|
+--------------------+
```

This ends the Analog Adjustment Mode. Switch off the power.